



**FEDERAL
PUBLICATION**

528.7

United States Government
Designated Depository
Library of Washington University
St. Louis, Mo.

120.1685

REPORT

OF THE

DIRECTOR OF THE MINT

UPON THE

PRODUCTION OF THE PRECIOUS METALS

IN THE

UNITED STATES

DURING THE

CALENDAR YEAR 1903.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1904.

TREASURY DEPARTMENT,

Document No. 2384.

Director of the Mint.

CONTENTS.

	Page.
LETTER OF TRANSMITTAL	5
PART I:	
Production of gold and silver in the United States, 1903.....	9
Deposits of gold	17
Deposits and purchases of silver	18
Deposits of gold and silver since 1880	19
Coinage of the United States	20
Coinage for foreign governments	21
Imports and exports of the precious metals.....	21
Movement of gold from the port of New York.....	24
Imports and exports of the principal countries of the world	25
The market price of silver in 1903	30
Exports of silver to the East	31
Value of net imports of silver into India since 1835.....	31
Gold and silver imported into and exported from British India.....	32
Imports and exports of bullion into and from London.....	32
Stock of money in the United States.....	33
Gold and silver used in the industrial arts.....	35
World's industrial consumption of the precious metals	37
World's production of gold and silver in 1903	41
World's coinage.....	43
PART II:	
Reports of the special agents of the Bureau of the Mint on the production of the precious metals in 1903 in the several States and Territories	45
I.—Alaska	47
II.—Arizona	51
III.—California	67
IV.—Colorado.....	79
V.—Idaho	82
VI.—Montana	85
VII.—Nevada	94
VIII.—New Mexico.....	97
IX.—Oklahoma.....	103
X.—Oregon	105
XI.—Southern Appalachian States	109
XII.—South Dakota	119
XIII.—Utah	124
XIV.—Washington	131
XV.—Wyoming	136
PART III:	
Production of gold and silver in foreign countries.....	139
Africa	196
Argentina	168
Australasia	189
Austria-Hungary	175
Bolivia	166
Brazil	163
British India.....	184
British North America.....	141
Central America	148
Chile.....	166

PART III—Continued.

Production of gold and silver in foreign countries—Continued.

	Page.
China	179
Colombia	156
East Indies	188
Ecuador	163
Egypt	201
Finland	170
France	175
Germany	174
Great Britain	173
Greece	177
The Guianas	157
Italy	177
Japan	187
Korea	180
Mexico	147
Norway	172
Peru	165
Portugal	176
Russia	169
Spain	176
Sweden	173
Turkey	178
Uruguay	169
Venezuela	162
Yukon (<i>see</i> British North America)	141

PART IV. GENERAL STATISTICS:

TABLE I.—Deposits and purchases of gold and silver, by weight	204
II.—Deposits and purchases of gold and silver, by value	206
III.—Deposits of unrefined gold of domestic production, by weight	208
IV.—Deposits of unrefined gold of domestic production, by value	208
V.—Deposits of unrefined silver of domestic production, by weight	210
VI.—Deposits of unrefined silver of domestic production, by value	210
VII.—Bars manufactured, by weight	212
VIII.—Bars manufactured, by value	212
IX.—Recoinage of United States gold and silver coins, calendar year 1903	214
X.—Quantity and cost of silver used in the coinage of silver dollars	216
XI.—Quantity and cost of metal obtained by transfer and purchase for subsidiary coinage	217
XII.—Coinage of the United States during the calendar year 1903	220
XIII.—Assets and liabilities of mints and assay offices December 31, 1903	222
XIV.—Unrefined domestic gold and silver bullion deposited at the mints and assay offices to the close of the calendar year 1903	224
XV.—Production of gold and silver in the United States, annually, from the organization of the Mint	225
XVI.—Highest, lowest, and average price of silver in London since 1833	226
XVII.—Ratio of silver to gold each year since 1687	227
XVIII.—Imports of gold and silver coin and bullion, by districts	228
XIX.—Imports of gold and silver coin and bullion, by countries	230
XX.—Exports of foreign gold and silver	232
XXI.—Exports of domestic gold and silver	234
XXII.—Recapitulation of imports and exports	236
XXIII.—Imports and exports of the principal countries of the world	237
XXIV.—Coinage of nations, 1901, 1902, and 1903	262
XXV.—World's production of gold and silver, 1901, 1902, and 1903	263
XXVI.—Production of gold and silver in the world since the discovery of America	266
XXVII.—Coinages of the United States, by denominations and values, since the organization of the Mint	268
XXVIII.—Fractional and subsidiary coinage since 1792	269
XXIX.—Coinages, by institutions, from organization of the Mint	270

LETTER OF TRANSMITTAL.

TREASURY DEPARTMENT,
BUREAU OF THE MINT,
Washington, D. C., October 24, 1904.

SIR: I have the honor to hand you herewith my report on the production of gold and silver in the United States and in the world for the calendar year 1903, together with such information as to their coinage and consumption as this Bureau has been able to gather. The returns for this country have been carefully obtained through officials and special agents of this Bureau, and the aggregate of precious metals reported has been actually traced from production to market. The figures are therefore conservative, but are believed to be approximately full. The statistics for foreign countries are obtained from official sources wherever governmental calculations are made, and where such returns can not be had the best obtainable estimates are given and the authority stated.

Respectfully,

GEO. E. ROBERTS,
Director of the Mint.

The SECRETARY OF THE TREASURY.

PART I.

PRODUCTION, EMPLOYMENT, AND MOVEMENT OF GOLD AND SILVER
IN THE UNITED STATES, AND SURVEY OF THE WORLD'S
PRODUCTION OF GOLD AND SILVER IN 1903.

REPORT

ON

THE PRODUCTION OF THE PRECIOUS METALS IN THE UNITED STATES DURING THE CALENDAR YEAR 1903.

In 1903 the United States produced 3,560,000 fine ounces of gold, of the value of \$73,591,700, as against 3,870,000 ounces, valued at \$80,000,000, in 1902. There was, therefore, a decrease of 310,000 ounces, or 8.01 per cent.

The yield of silver in 1903 amounted to 54,300,000 fine ounces, of the commercial value (at 54 cents per ounce) of \$29,322,000. There was a decrease in production as compared with the amount won in 1902 of 1,200,000 fine ounces, but as the average price of silver in 1903 was 54 cents as against 53 cents the previous year, the decrease in commercial value was only \$93,000.

Comparing the total value of the precious metals produced in the United States in 1903 (\$102,913,700) with that of the previous year (\$109,415,000), there was a decrease of \$6,501,300, or 5.94+ per cent.

Of the producing States and Territories 11 together increased their output of gold to the extent of \$1,274,000, while the remaining 10 show a decrease of \$7,682,300. In silver, 11 States together show an increase of \$1,556,766, the remaining States a decrease of \$2,204,766.

Alaska.—In 1902 this Territory produced gold to the value of \$8,345,800, while the yield in 1903 was \$8,614,700, a gain of \$268,900. The commercial value of the silver produced in the former year was \$48,813 and in the latter \$77,544, an increase of \$28,731, the total gain in value of the precious metals produced by Alaska in 1903 as compared with 1902 was therefore \$297,631. The yield of the Nome district declined in 1903; therefore the increase came from the quartz mines of southeastern Alaska and the placers along the Yukon River.

Arizona.—In this Territory there was an increase in the value of the gold production of 1903 as compared with the previous year's yield of \$245,300 and in silver of \$216,191. In 1902 the total value of the precious metals was \$5,725,143 as against \$6,186,634 in 1903. This excellent result was obtained in spite of labor troubles, which at one time threatened greatly to curtail the output.

California.—In 1902 this State produced \$16,792,100 worth of gold, and in 1903 the amount won was \$16,104,500, a decrease of \$687,600. In silver there was an increase from 900,800 to 931,500 ounces, or 30,700 fine ounces, equivalent to a gain in commercial value of \$25,586.

The decrease in gold production is stated to have been due to the temporary closing down of certain large producing quartz properties on account of labor troubles.

Colorado.—The gold production of Colorado decreased from \$28,468,700 in 1902 to \$22,540,100 in 1903, a diminution of \$5,928,600, while her silver output dropped from \$8,308,280 to \$7,014,708, a loss of \$1,293,572. The decreased production of the precious metals was entirely due to persistent labor disturbances.

Idaho.—The gold yield of Idaho for 1902 was valued at \$1,475,000, and that of 1903 at \$1,570,400, an increase of \$95,400. In silver there was an increase of 652,600 fine ounces, or \$410,952, partly due to the increase in price. The increase in gold was largely due to new activity in quartz mining, the placer yield having remained practically the same for several years.

Montana.—In this State there was a slight gain in the gold production of 1903 as compared with 1902, it having been valued at \$4,411,900 and \$4,373,600, respectively, an increase of \$38,300. In silver there was a decrease in the latter year of 601,500 fine ounces; the diminution in commercial value, however, amounted to only \$192,372. Thus it will be seen that there were no marked developments in the mining of the precious metals in Montana in 1903.

Nevada.—Compared with 1902 Nevada made a substantial gain in gold production in 1903, the output in the former year having been valued at \$2,895,300 against \$3,388,000 in the latter, an increase of \$492,700. There was also an increase in silver amounting to 1,304,000 fine ounces, the output in 1903 having been 5,050,000 fine ounces. The gain in commercial value was \$741,784.

New Mexico.—The gold product of New Mexico, never large, again showed a decrease in 1903 as compared with 1902, it having fallen from \$531,100 in the former year to \$244,600 in the latter, a loss of \$286,500; the silver yield also was less, having diminished from 457,200 to 180,700 fine ounces, a decrease of 276,500 fine ounces. The value of the silver produced in 1902 was \$242,316 and in 1903 \$97,578; the total decrease in the value of the precious metals produced was therefore \$431,238.

Oregon.—For various reasons several of Oregon's largest quartz mines were not operated very extensively, or were entirely shut down in 1903; there was consequently a decrease in the gold production of that year as compared with that of 1902 of \$526,500, the yield in the last-named year having been valued at \$1,816,700, while in the twelve months just closed it was only \$1,290,200. In silver, however, there was an increase from 93,300 to 118,000 fine ounces, a gain of 24,700 ounces, or \$14,271.

South Appalachian States.—This region produced only a small amount of the precious metals. In 1902 the gold yield amounted to \$318,500, and in 1903 it declined to \$252,400, while the silver output was valued at \$20,564 in the former year against \$19,090 in the latter. The diminution in output is ascribed to the low price of copper.

South Dakota.—In 1902 South Dakota produced gold to the value of \$6,965,400, and in 1903 to the extent of \$6,826,700; there was consequently a falling off of \$138,700. In the two years under comparison the silver yield was, respectively, 340,200 and 221,200 ounces, a

decrease in the latter year of 119,000 ounces. The diminution in production is ascribed to the early closing of one of the principal smelters.

Utah.—Owing to the fact that new properties are being opened in all of the more important mining districts, Utah in 1903 made a marked gain in her production of the precious metals. In 1902 the yield of gold and silver was valued at \$9,335,301, against \$9,743,672 in 1903. There was a gain in the production of gold in the latter year of \$102,900 and in silver of \$305,471, due to increased production and the rise in price.

Washington.—There was a slight increase in the production of gold in Washington in 1903 as compared with 1902, in which year the yield was valued at \$272,200. In the year just closed its value was \$279,900. The gain, consequently, was \$7,700. In silver, however, there was a falling of 324,500 fine ounces. In 1903 the total value of the precious metals produced was \$438,930, as against \$600,270 the previous year. The decrease was therefore \$161,340.

Wyoming.—This State's production of the precious metals is never great. The yield of gold, which amounted to \$38,800 in 1902, fell to \$3,600 in 1903, while the silver yield was 5,000 and 200 fine ounces in the years named. It is believed that the development of copper mines of Wyoming will cause a marked advance in the production of the precious metals in that State.

Comparative statements of the production of the precious metals in 1902 and 1903 in the several States and Territories are found in the following table:

PRODUCT OF GOLD IN THE SEVERAL STATES AND TERRITORIES IN 1902 AND 1903 AND THE INCREASE OR DECREASE OF EACH IN THE LATTER YEAR.

State or Territory.	Value.			
	1902.	1903.	Increase.	Decrease.
Alabama.....	\$2,500	\$4,400	\$1,900	.....
Alaska.....	8,345,800	8,614,700	268,900	.....
Arizona.....	4,112,300	4,357,600	245,300	.....
California.....	16,792,100	16,104,500	.....	\$687,600
Colorado.....	28,468,700	22,540,100	.....	5,928,600
Georgia.....	97,800	62,000	.....	35,800
Idaho.....	1,475,000	1,570,400	95,400	.....
Kansas.....	.....	9,700	9,700	.....
Maryland.....	2,500	500	.....	2,000
Montana.....	4,373,600	4,411,900	38,300	.....
Nevada.....	2,895,300	3,388,000	492,700	.....
New Mexico.....	531,100	244,600	.....	286,500
North Carolina.....	90,700	70,500	.....	20,200
Oregon.....	1,816,700	1,290,200	.....	526,500
South Carolina.....	121,900	100,700	.....	21,200
South Dakota.....	6,965,400	6,826,700	.....	138,700
Tennessee.....	.....	800	800	.....
Utah.....	3,594,500	3,697,400	102,900	.....
Virginia.....	3,100	13,500	10,400	.....
Washington.....	272,200	279,900	7,700	.....
Wyoming.....	38,800	3,600	.....	35,200
Total.....	80,000,000	73,591,700	1,274,000	7,682,300
Net decrease.....	.....	.....	.....	6,408,300

PRODUCT OF SILVER IN THE SEVERAL STATES AND TERRITORIES IN 1902 AND 1903 AND THE INCREASE OR DECREASE OF EACH IN THE LATTER YEAR.

State or Territory.	Weight.			
	1902.	1903.	Inerease.	Decrease.
	<i>Fine ounces.</i>	<i>Finc ounces.</i>	<i>Fine ounces.</i>	<i>Fine ounces.</i>
Alabama.....	100	.....	.....	100
Alaska.....	92,000	143,600	51,600	.....
Arizona.....	3,043,100	3,387,100	344,000	.....
California.....	900,800	931,500	30,700	.....
Colorado.....	15,676,000	12,990,200	.....	2,685,800
Georgia.....	400	400	.....	.....
Idaho.....	5,854,800	6,507,400	652,600	.....
Kansas.....	.....	97,400	97,400	.....
Michigan.....	110,800	50,000	.....	60,800
Montana.....	13,243,800	12,642,300	.....	601,500
Nevada.....	3,746,200	5,050,500	1,304,300	.....
New Mexico.....	457,200	180,700	.....	276,500
North Carolina.....	20,900	11,000	.....	9,900
Oregon.....	93,300	118,000	24,700	.....
South Carolina.....	300	300	.....	.....
South Dakota.....	340,200	221,200	.....	119,000
Tennessee.....	12,300	13,000	700	.....
Texas.....	446,200	454,400	8,200	.....
Utah.....	10,831,700	11,196,800	365,100	.....
Virginia.....	5,900	9,500	3,600	.....
Washington.....	619,000	294,500	.....	324,500
Wyoming.....	5,000	200	.....	4,800
Total.....	55,500,000	54,300,000	2,882,900	4,082,900
Net decrease.....	.....	.....	.....	1,200,000

In estimating the gold yield of the United States in any given year only that gold is looked upon as really produced that has been refined, made ready for the market, and the ascertained amount of domestic origin (which is comparatively insignificant) that has been exported to foreign countries for reduction.

It has been the custom of the Bureau of the Mint to make for every calendar year two independent calculations of the gold product of the country, and to take their mean as the closest approximation that can be had to the actual output of the mines. The first of these is based on the amount of gold put upon the market by private refineries during the year, plus the fine gold contained in the unrefined of domestic production deposited at the mints and assay offices of the United States, plus the pure metal of domestic production contained in ores, copper matte, etc., exported to other countries for reduction. The second calculation is based on the known disposition made of the newly produced gold in any calendar year. Such gold is either deposited at the mints and assay offices of the United States, or exported from the United States in form of bullion, ores, or copper matte, or used in the industrial arts. If foreign gold bullion enters into any of the above items its amount must, of course, be deducted.

Put in tabular form, the first calculation of the gold product of the United States in the calendar year 1903 assumes the following shape:

APPROXIMATE GOLD PRODUCT OF THE MINES OF THE UNITED STATES DURING THE CALENDAR YEAR 1903.

Items reported for 1903.	Gold.
.....	<i>Fine ounces.</i>
Domestic product in fine gold bars reported by private refineries.....	2,316,930
Unrefined gold of domestic production deposited at the mints and assay offices.....	1,234,886
Domestic gold contained in ores, copper matte, etc., exported for reduction.....	31,662
Total	3,583,478

The second calculation of the gold yield of the mines of the United States in the calendar year 1903, reduced to a table, is as follows:

APPROXIMATE DISPOSITION OF THE GOLD PRODUCT OF THE MINES OF THE UNITED STATES
DURING THE CALENDAR YEAR 1903.

Disposition.	Gold.
	<i>Fine ounces.</i>
Bullion deposited at the mints and assay offices classified as of domestic production...	4,233,867
Less refinery bars deposited and reported to this Bureau as from old material	115,845
Net new material deposited	4,118,022
Domestic bullion other than United States mint or assay office bars exported from the United States, as per custom-house returns.....	61,965
Domestic gold in ores, copper matte, etc., exported.....	31,662
Bullion of domestic production reported by private refineries in the United States as having been made into bars for manufacturers and jewelers, for use in the industrial arts.....	31,145
Total	4,242,794
Deduct foreign bullion reported to the Bureau of the Mint by private refineries in the United States, as contained in their product of fine gold bars deposited at the mints and assay offices, or entered at the custom-houses for exportation as of domestic production, but derived from foreign ores.....	706,852
Net total.....	3,535,942

The difference between the results of these two calculations is only 47,536 ounces, a variation so slight that the mean of the two estimates, 3,559,710—in round numbers 3,560,000 ounces—may be taken as the actual output of the mines of the country.

The silver product of the United States in any given calendar year is estimated in precisely the same manner as the gold product, namely, by making two independent calculations of the same and taking their mean as the actual product.

APPROXIMATE SILVER PRODUCT OF THE MINES OF THE UNITED STATES DURING THE
CALENDAR YEAR 1903.

Items reported for 1903.	Silver.
	<i>Fine ounces.</i>
Domestic product in fine silver bars reported by private refineries	53,956,870
Unrefined silver of domestic production deposited at the mints and assay offices.....	386,420
Domestic silver contained in ores, copper matte, etc., exported for reduction.....	146,752
Total	54,490,042

The second calculation or disposition of the silver yield of the mines of the United States in the calendar year 1903, reduced to a table, is as follows:

APPROXIMATE DISPOSITION OF THE SILVER PRODUCT OF THE MINES OF THE UNITED STATES DURING THE CALENDAR YEAR 1903.

Disposition.	Silver.
	<i>Fine ounces.</i>
Bullion deposited at the mints and assay offices classified as of domestic production...	13, 969, 176
Less refinery bars deposited and reported to this Bureau as from old material	103, 969
Net new material deposited.....	13, 865, 207
Domestic bullion other than United States mint or assay office bars exported from the United States (custom-house), rating at commercial value \$38,665,512, corresponding at average price of silver during the year to \$0.54 per ounce fine	71, 602, 800
Domestic silver in ores, copper matte, etc., exported	146, 752
Bullion of domestic production reported by private refineries in the United States as having been made into bars for manufacturers and jewelers for use in the industrial arts.....	13, 867, 098
Total	99, 481, 857
Deduct foreign bullion reported to the Bureau of the Mint by private refineries in the United States, as contained in their product of fine silver bars deposited at the mints and assay offices or entered at the custom-houses for exportation as of domestic production, but derived from foreign ores..	43, 962, 787
Decrease in the approximate stock of silver bars, exclusive of any bars bearing the stamp of a United States mint or assay office in the United States, held by the Mercantile Safe Deposit Company and other institutions at the close of the calendar year 1903, according to information furnished this Bureau.....	1, 351, 060
	45, 313, 847
Net total.....	54, 168, 010

The average, in round numbers, 54,300,000 fine ounces, or 1,689,270 kilograms, fine, valued at \$70,206,060 coining value, or \$29,322,000 commercial value, is the estimated yield.

In addition to the above sources of information, this Bureau has for a number of years been collecting statistics of mining production through special agents in the several States and Territories. The following table is a summary of their reports, which are given in another part of the present report:

PRODUCT OF GOLD AND SILVER IN THE INDIVIDUAL STATES AND TERRITORIES FOR THE CALENDAR YEAR 1903.
[As reported by mint officers and agents.]

State or Territory.	Gold.		Silver.			Total value (silver at commercial value).
	Fine ounces.	Value.	Fine ounces.	Coining value.	Commercial value.	
Alabama.....	237	\$4, 899	49	\$63	\$26	\$4, 925
Alaska.....	420, 071	8, 683, 638	180, 161	232, 935	97, 287	8, 780, 925
Arizona.....	221, 384	4, 576, 413	3, 406, 451	4, 404, 300	1, 839, 484	6, 415, 897
California.....	785, 729	16, 242, 464	965, 921	1, 248, 867	521, 597	16, 764, 061
Colorado.....	1, 098, 389	22, 705, 716	13, 260, 574	17, 144, 984	7, 160, 710	29, 866, 426
Georgia.....	3, 219	66, 543	1, 303	1, 685	704	67, 247
Idaho.....	83, 737	1, 730, 997	6, 915, 036	8, 940, 652	3, 734, 119	5, 465, 116
Maryland.....	31	641	1	1	1	642
Michigan.....			49, 991	64, 635	26, 995	26, 995
Montana.....	222, 066	4, 590, 516	13, 224, 004	17, 097, 702	7, 140, 962	11, 731, 478
Nevada.....	176, 190	3, 642, 181	5, 152, 096	6, 661, 296	2, 782, 132	6, 424, 313
New Mexico.....	13, 043	269, 623	201, 956	261, 115	109, 056	378, 679
North Carolina.....	5, 109	105, 612	13, 076	16, 906	7, 061	112, 673
Oregon.....	65, 447	1, 352, 910	125, 599	162, 391	67, 823	1, 420, 733
South Carolina.....	5, 219	107, 886	271	350	146	108, 032
South Dakota.....	339, 803	7, 024, 351	273, 545	353, 674	147, 714	7, 172, 065
Tennessee.....	3	62				62
Texas.....			454, 376	587, 476	245, 363	245, 363
Utah.....	192, 094	3, 970, 935	11, 814, 932	15, 275, 872	6, 380, 063	10, 350, 998
Virginia.....	216	4, 465	17, 073	22, 074	9, 220	13, 685
Washington.....	21, 593	446, 367	305, 401	394, 862	164, 917	611, 284
Wyoming.....	401	8, 289	826	1, 068	446	8, 735
Total.....	3, 653, 981	75, 534, 508	56, 362, 642	72, 872, 908	30, 435, 826	105, 970, 334

The total product of the precious metals reported by mint officers and agents in the foregoing table somewhat exceeds either of the above calculations of this Bureau. A difference between the two sets of figures is naturally to be expected, inasmuch as they do not relate to the same thing, the figures reported by mint officers and agents representing the estimated fine contents of the ore, whereas the estimates of this Bureau deal with the finished product only. That the calculations of this Bureau nevertheless approximate very closely the results obtained from the mines by mint officers and agents in the several States and Territories vouches for the practical accuracy of the estimates.

The following table gives the weight and value of the finished product by States, as estimated at this Bureau:

APPROXIMATE DISTRIBUTION, BY PRODUCING STATES AND TERRITORIES, OF THE PRODUCT OF GOLD AND SILVER IN THE UNITED STATES FOR THE CALENDAR YEAR 1903.

[As estimated by the Director of the Mint.]

State or Territory.	Gold.		Silver.			Total value (silver at commercial value).
	Fine ounces.	Value.	Fine ounces.	Coining value.	Commercial value.	
Alabama.....	213	\$4,400				\$4,400
Alaska.....	416,738	8,614,700	143,600	\$185,665	\$77,544	8,692,244
Arizona.....	210,799	4,357,600	3,387,100	4,379,281	1,829,034	6,186,634
California.....	779,057	16,104,500	931,500	1,204,364	503,010	16,607,510
Colorado.....	1,090,376	22,540,100	12,990,200	16,795,410	7,014,708	29,554,808
Georgia.....	3,600	62,000	400	517	216	62,216
Idaho.....	75,969	1,570,400	6,507,400	8,413,608	3,513,996	5,084,396
Kansas.....	468	9,700	97,400	125,931	52,596	62,296
Maryland.....	24	500				500
Michigan.....			50,000	64,646	27,000	27,000
Montana.....	213,425	4,411,900	12,642,300	16,345,600	6,826,842	11,238,742
Nevada.....	163,892	3,388,000	5,050,500	6,529,939	2,727,270	6,115,270
New Mexico.....	11,833	244,600	180,700	233,632	97,578	342,178
North Carolina.....	3,411	70,500	11,000	14,222	5,940	76,440
Oregon.....	62,411	1,290,200	118,000	152,566	63,720	1,353,920
South Carolina.....	4,872	100,700	300	388	162	100,862
South Dakota.....	330,243	6,826,700	221,200	285,996	119,448	6,946,148
Tennessee.....	38	800	13,000	16,808	7,020	7,820
Texas.....			454,400	587,507	245,376	245,376
Utah.....	178,863	3,697,400	11,196,800	14,476,671	6,046,272	9,743,672
Virginia.....	654	13,500	9,500	12,283	5,130	18,630
Washington.....	13,539	279,900	294,500	380,768	159,030	438,930
Wyoming.....	175	3,600	200	258	108	3,708
Total.....	3,560,000	73,591,700	54,300,000	70,206,060	29,322,000	102,913,700

The sources of the production of gold and silver in the United States, compiled from the reports made by mint officers and agents, are given in the following table:

DISTRIBUTION OF THE GOLD AND SILVER PRODUCT OF THE UNITED STATES FOR THE
CALENDAR YEAR 1903, AS TO THE SOURCES OF PRODUCTION.

[As reported by mint officers and agents.]

State or Territory.	Gold.		Silver.		
	Quartz.	Placer.	Quartz.	Lead ores.	Copper ores.
	<i>Fine ounces.</i>	<i>Fine ounces.</i>	<i>Fine ounces.</i>	<i>Fine ounces.</i>	<i>Fine ounces.</i>
Alabama	222	15	49		
Alaska	131,862	288,209	180,161		
Arizona	216,584	4,800	1,911,451	195,000	1,300,000
California	596,607	189,122	325,512	144,482	495,927
Colorado	1,069,364	29,025	2,917,326	10,343,248	
Georgia	1,989	1,230	1,303		
Idaho	47,506	36,231	872,811	6,042,225	
Maryland	9	22	1		
Michigan					49,991
Montana	198,776	23,290	4,091,158	450,303	8,682,543
Nevada	174,428	1,762	5,151,631	465	
New Mexico	7,499	5,544	12,349	104,242	85,365
North Carolina	4,671	438			13,076
Oregon	55,447	10,000	124,599	1,000	
South Carolina	5,092	127	271		
South Dakota	339,803		273,545		
Tennessee		3			
Texas			454,376		
Utah	192,094		361,622	8,258,303	3,195,007
Virginia	216				17,073
Washington	20,593	1,000	156,537	143,614	5,250
Wyoming		401	826		
Total	3,062,762	591,219	16,835,528	25,682,882	13,844,232

^a Lead and copper ores.

As seen from the foregoing table, Alaska furnishes nearly one-half of all the placer gold and California more than one-fourth; over two-thirds of Alaska gold is placer gold; placer mining is of considerable relative importance in Idaho and Oregon. On the whole, however, quartz mining predominates in the United States.

With regard to silver, on the contrary, quartz mining occupies, on the whole, the second place. Of the main silver producing States and Territories, only Arizona, Nevada, Texas, South Dakota, and Oregon show a preponderance of quartz mining; copper mining as a source of silver production predominates only in Montana.

The first place is held by the product from lead ores. In the table next below the results of the year 1903 are compared with those of former years. As seen from this table, the distribution of the silver product among the several sources of production showed a slight change in 1903 as compared with 1902.

DISTRIBUTION OF THE SILVER PRODUCT OF THE UNITED STATES AS TO THE SOURCES
OF PRODUCTION.

[illegible]

The annual production of gold and silver from the mines of the United States since 1860 is shown in the following table:

(The commercial value of the silver product is reckoned at the average yearly market price of silver and its coining value in United States dollars.)

PRODUCT OF GOLD AND SILVER FROM MINES IN THE UNITED STATES SINCE 1860.

[The estimate for 1860-1872 is by R. W. Raymond, commissioner, and since 1872 by the Bureau of the Mint.]

Calendar year.	Gold.		Silver.		
	Fine ounces.	Value.	Fine ounces.	Commercial value.	Coining value.
1860.....	2,225,250	\$46,000,000	116,015	\$157,000	\$150,000
1861.....	2,080,125	43,000,000	1,546,875	2,062,000	2,000,000
1862.....	1,896,300	39,200,000	3,480,469	4,685,000	4,500,000
1863.....	1,935,000	40,000,000	6,574,219	8,842,000	8,500,000
1864.....	2,230,088	46,100,000	8,507,812	11,443,000	11,000,000
1865.....	2,574,759	53,225,000	8,701,171	11,642,000	11,250,000
1866.....	2,588,063	53,500,000	7,734,375	10,356,000	10,000,000
1867.....	2,502,197	51,725,000	10,441,406	13,866,000	13,500,000
1868.....	2,322,000	48,000,000	9,281,250	12,307,000	12,000,000
1869.....	2,394,563	49,500,000	9,281,250	12,298,000	12,000,000
1870.....	2,418,750	50,000,000	12,375,000	16,734,000	16,000,000
1871.....	2,104,313	43,500,000	17,789,062	23,578,000	23,000,000
1872.....	1,741,500	36,000,000	22,236,328	29,396,000	28,750,000
Total	29,012,908	599,750,000	118,065,232	157,366,000	152,650,000
1873.....	1,741,500	36,000,000	27,650,000	35,890,000	35,750,000
1874.....	1,620,563	33,500,000	28,849,000	36,869,000	37,300,000
1875.....	1,615,725	33,400,000	24,518,000	30,549,000	31,700,000
1876.....	1,930,162	39,900,000	30,009,000	34,690,000	38,800,000
1877.....	2,268,788	46,900,000	30,783,000	36,970,000	39,800,000
1878.....	2,476,800	51,200,000	34,960,000	40,270,000	45,200,000
1879.....	1,881,787	38,900,000	31,550,000	35,430,000	40,800,000
1880.....	1,741,500	36,000,000	30,320,000	34,720,000	39,200,000
1881.....	1,678,612	34,700,000	33,260,000	37,850,000	43,000,000
1882.....	1,572,187	32,500,000	36,200,000	41,120,000	46,800,000
1883.....	1,451,250	30,000,000	35,730,000	39,660,000	46,200,000
1884.....	1,489,950	30,800,000	37,800,000	42,070,000	48,800,000
1885.....	1,538,325	31,800,000	39,910,000	42,500,000	51,600,000
1886.....	1,693,125	35,000,000	39,440,000	39,230,000	51,000,000
1887.....	1,596,375	33,000,000	41,260,000	40,410,000	53,350,000
1888.....	1,604,841	33,175,000	45,780,000	43,020,000	59,195,000
1889.....	1,587,000	32,800,000	50,000,000	46,755,000	64,646,000
1890.....	1,588,880	32,845,000	54,500,000	57,220,000	70,465,000
1891.....	1,604,841	33,175,000	58,330,000	57,630,000	75,417,000
1892.....	1,596,375	33,000,000	63,500,000	55,563,000	82,101,000
1893.....	1,739,323	35,955,000	60,000,000	46,800,000	77,576,000
1894.....	1,910,813	39,500,000	49,500,000	31,422,000	64,000,000
1895.....	2,254,760	46,610,000	55,727,000	36,445,000	72,051,000
1896.....	2,568,132	53,088,000	58,835,000	39,655,000	76,069,000
1897.....	2,774,935	57,363,000	53,860,000	32,316,000	69,637,000
1898.....	3,118,398	64,463,000	54,438,000	32,118,000	70,384,000
1899.....	3,437,210	71,053,000	54,764,000	32,859,000	70,806,000
1900.....	3,829,897	79,171,000	57,647,000	35,741,000	74,533,000
1901.....	3,805,500	78,666,700	55,214,000	33,128,000	71,387,000
1902.....	3,870,000	80,000,000	55,500,000	29,415,000	71,758,000
1903.....	3,560,000	73,591,700	54,300,000	29,322,000	70,206,000
Total	67,147,554	1,388,056,400	1,384,134,000	1,207,637,000	1,789,531,000
Grand total.....	96,160,462	1,987,806,400	1,502,199,232	1,365,003,000	1,942,181,000

Tables showing the product of gold and silver from mines of the United States since 1792 will be found in the Appendix.

DEPOSITS OF GOLD.

The deposits of gold at the mints and assay offices during the calendar year 1903 contained 6,747,105 fine ounces, of the value of \$139,475,047, an increase in value of \$12,332,710 over the amount reported for 1902.

Domestic gold deposited contained 4,233,866 fine ounces, of the value of \$87,521,783.

Domestic gold coin deposited and transfer of mutilated gold coin from the Treasury contained 101,646 fine ounces, of the value of \$2,101,203.

Foreign gold bullion deposited contained 709,750 fine ounces of refined bullion, valued at \$14,671,830, and 836,231 fine ounces of unrefined bullion, of the value of \$17,286,436—a total value of \$31,958,266—as shown by the following table:

Country of production.	Refined bullion.		Unrefined bullion.	
	Fine ounces.	Value.	Fine ounces.	Value.
Great Britain	704,815	\$14,569,814	8,589	\$177,557
British Columbia	1,317	27,218	55,208	1,141,240
Northwest Territory			486,359	10,053,927
Nova Scotia			18,120	374,579
Ontario and Quebec			14,174	292,999
Manitoba			31	652
Mexico	1,403	29,096	170,393	3,522,335
Central America	4	102	37,658	778,457
South America	2,206	45,600	45,249	935,388
West Indies			313	6,465
French Guiana			58	1,194
South Africa			79	1,643
Total	709,750	14,671,830	836,231	17,286,436

Foreign gold coin deposited contained 649,264 fine ounces, of the value of \$13,421,491, as shown by the following statement:

Country of coinage.	Fine ounces.	Value.
Great Britain	478,671	\$9,894,999
Germany	956	19,764
Russia	1,319	27,262
France	5,586	115,480
Mexico	19,322	399,422
Spain	18,361	379,544
Japan	98,821	2,042,821
West Indies	11	235
Central America	807	16,693
South America	97	2,011
Mixed	25,313	523,260
Total	649,264	13,421,491

Old jewelry deposited contained 216,348 fine ounces of gold, of the value of \$4,472,304.

DEPOSITS AND PURCHASES OF SILVER.

Silver is coined in the United States on Government account only. Deposits of silver bullion are received by the mints and assay offices to be returned to the depositor in fine or unparted bars with the weight and fineness stamped thereon. These deposits are confined almost exclusively to the assay office at New York, and the bars when returned to the depositor are sold for use in the arts or exported.

The deposits and purchases of silver at the United States mints and assay offices during the calendar year 1903 were as follows:

	Fine ounces.
Silver contained in gold deposits	549, 691. 28
For Philippine coinage.....	13, 939, 669. 09
Uncurrent domestic coin, including Hawaiian and Porto Rican.....	2, 243, 487. 19
For return in fine bars.....	5, 194, 880. 74
For foreign coinage.....	423, 576. 25
Total.....	22, 351, 304. 55

In the above purchases and deposits the bullion of domestic production amounted to 16,346,347 fine ounces and that of foreign production to 111,543 fine ounces. The foreign silver coin included amounted to 1,889,222 fine ounces, from the following countries:

Country of coinage.	Fine ounces.	Coining value.
Great Britain	21	\$28
Mexico.....	1, 423, 920	1, 841, 027
Spain	420, 155	543, 231
West Indies.....	4, 881	6, 311
Central America.....	376	486
South America.....	18, 613	24, 065
Mixed coin	21, 256	27, 482
Total.....	1, 889, 222	2, 442, 630

Old jewelry and plate deposited contained 607,724 fine ounces, of the coining value of \$785,744.

DEPOSITS OF GOLD AND SILVER SINCE 1880.

The following table shows the amount of gold and silver (excluding redeposits) received at the mints and assay offices, by calendar years, since 1880:

Calendar year.	Gold.	Silver (coining value).	Total.
1880.....	\$100, 278, 703	\$35, 103, 825	\$135, 382, 528
1881.....	98, 763, 426	30, 326, 848	129, 090, 274
1882.....	41, 921, 263	35, 161, 254	77, 082, 517
1883.....	51, 089, 456	36, 978, 184	88, 067, 640
1884.....	50, 518, 179	36, 670, 731	87, 188, 910
1885.....	44, 714, 052	35, 836, 725	80, 550, 777
1886.....	66, 422, 088	39, 086, 070	105, 508, 158
1887.....	74, 724, 077	46, 381, 333	121, 105, 410
1888.....	41, 496, 410	41, 323, 973	82, 820, 383
1889.....	42, 599, 206	41, 977, 265	84, 576, 471
1890.....	48, 767, 964	55, 198, 037	103, 966, 001
1891.....	60, 849, 552	70, 994, 120	131, 843, 672
1892.....	45, 406, 646	84, 591, 898	129, 998, 544
1893.....	69, 419, 223	62, 465, 005	131, 884, 228
1894.....	49, 704, 902	14, 120, 605	63, 825, 507
1895.....	69, 433, 579	13, 843, 636	83, 277, 215
1896.....	91, 743, 670	10, 873, 160	102, 616, 830
1897.....	87, 924, 232	12, 707, 128	100, 631, 360
1898.....	182, 996, 602	15, 841, 222	198, 837, 824
1899.....	129, 798, 782	13, 481, 927	143, 280, 511
1900.....	158, 060, 258	16, 005, 626	174, 065, 884
1901.....	136, 858, 186	7, 486, 293	144, 344, 479
1902.....	127, 142, 337	8, 585, 751	135, 728, 088
1903.....	139, 475, 047	28, 898, 656	168, 373, 703

COINAGE OF THE UNITED STATES.

The following table exhibits the number of fine ounces and value of gold and silver coinage of the United States, by calendar years, since 1873:

Calendar year.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
1873	2,758,475	\$57,022,748	3,112,891	\$4,024,748
1874	1,705,441	35,254,630	5,299,421	6,851,777
1875	1,594,050	32,951,940	11,870,635	15,347,893
1876	2,253,281	46,579,453	18,951,777	24,503,308
1877	2,128,493	43,999,864	21,960,246	28,393,045
1878	2,408,400	49,786,052	22,057,548	28,518,850
1879	1,390,499	39,080,080	21,323,498	27,569,776
1880	3,014,163	62,308,279	21,201,232	27,411,694
1881	4,685,162	96,850,890	21,609,970	27,940,164
1882	3,187,317	65,887,685	21,635,469	27,973,132
1883	1,414,581	29,241,990	22,620,701	29,246,968
1884	1,160,601	23,991,756	22,069,935	28,534,866
1885	1,343,519	27,773,012	22,400,433	28,962,176
1886	1,400,240	28,945,542	24,817,064	32,086,709
1887	1,159,664	23,972,383	27,218,101	35,191,081
1888	1,518,046	31,380,808	25,543,242	33,025,606
1889	1,035,899	21,413,931	27,454,465	35,496,683
1890	990,100	20,467,182	30,320,999	39,202,908
1891	1,413,614	29,222,005	21,284,115	27,518,857
1892	1,682,832	34,787,223	9,777,084	12,641,078
1893	2,757,231	56,997,020	6,808,413	8,802,797
1894	3,848,045	79,546,160	7,115,896	9,200,351
1895	2,883,941	59,616,358	4,407,055	5,698,010
1896	2,276,192	47,053,060	17,858,594	23,089,899
1897	3,677,878	76,028,485	14,298,769	18,487,297
1898	3,772,561	77,985,757	17,815,385	23,034,033
1899	5,386,277	111,344,220	20,156,957	26,061,520
1900	4,802,328	99,272,942	28,072,162	36,295,321
1901	4,921,439	101,735,188	23,851,621	30,838,461
1902	2,282,571	47,184,932	23,224,910	30,028,167
1903	2,113,212	43,683,970	15,371,636	19,874,440
Total	77,466,052	1,601,365,545	581,510,224	751,851,615

The coinage manufactured during the calendar year 1903 by the mints of the United States was 176,721,203 pieces, of the value of \$65,809,691.68, as follows:

Description.	Pieces.	Value.
Gold	4,476,584	^a \$43,683,970.50
Silver dollars	10,343,755	10,343,755.00
Subsidiary	48,799,645	9,530,685.00
Minor	113,101,218	2,251,281.18
Total	176,721,203	65,809,691.68

^aIncludes 175,178 gold dollars coined for Louisiana Purchase Exposition.

Tables will be found in the Appendix showing the value of the coinage made at each mint annually since 1792.

COINAGE FOR FOREIGN GOVERNMENTS.

In addition to our own, the mints of the United States manufactured the following silver coinage:

For the government of the Philippine Islands:

14, 155, 017	peso pieces.
3, 104, 177	50-centavo pieces.
5, 505, 427	20-centavo pieces.
6, 305, 216	10-centavo pieces.
8, 912, 558	5-centavo pieces.
10, 792, 558	1-centavo pieces.
12, 086, 558	$\frac{1}{2}$ -centavo pieces.

60, 861, 511 total pieces.

For the Government of Venezuela:

400, 000	5-bolivar pieces.
800, 000	1-bolivar pieces.
200, 000	$\frac{1}{2}$ -bolivar pieces.
400, 000	$\frac{1}{4}$ -bolivar pieces.

1, 800, 000 total pieces.

For the Government of Costa Rica:

630, 000 2-centimo pieces.

IMPORTS AND EXPORTS OF GOLD AND SILVER.

GOLD IMPORTS.

The value of the gold imported into the United States during the calendar year 1903 was \$65,267,696 against \$44,193,317 for the calendar year 1902, an increase of \$21,074,379. The value of gold bullion imported was \$22,103,612, of which amount \$14,358,463 came from Great Britain, \$5,062,073 from Mexico, \$1,312,158 from Canada, \$710,917 from Central American States, \$546,185 from South American States, \$57,603 from West Indies, \$42,678 from Korea, and the remainder from various countries.

Foreign gold coin of the value of \$18,195,434 was also imported, of which \$7,299,750 came from Australasia, \$4,773,149 from France, \$2,833,542 from Great Britain, \$2,142,155 from Japan, \$978,337 from West Indies, \$85,306 from Canada, and the remainder from various countries.

The value of gold contained in ore and base bullion imported was \$21,212,794, of which \$16,846,090 came from Canada, \$4,247,018 from Mexico, \$62,652 from South America, \$33,997 from Central American States, \$19,181 from Korea, and \$3,856 from West Indies.

There were returned to the United States gold coins of the value of \$3,755,856, of which \$1,653,162 came from Great Britain, \$1,565,648 from Canada, \$266,688 from West Indies, \$96,170 from Mexico, \$93,496 from South America, and the remainder from various countries.

GOLD IMPORTS, CALENDAR YEAR 1903.

Classification.	Amount.
Foreign gold bullion (refined)	\$22, 103, 612
Foreign coin	18, 195, 434
Gold in ore and base bullion.....	21, 212, 794
Total foreign	61, 511, 840
United States coin.....	3, 755, 856
Total gold imported.....	65, 267, 696

SILVER IMPORTS.

The silver imported into the United States from all sources during the calendar year 1903 aggregated \$23,974,508 against \$26,402,935 imported during the previous year, a decrease of \$2,428,427.

The commercial value of foreign silver bullion imported was \$5,536,292, of which amount \$5,185,081 came from Mexico, \$259,048 from Central America, \$79,051 from Canada, \$8,006 from South America, \$2,880 from West Indies, and \$2,226 from Japan.

Silver coins of the United States of the value of \$519,123 were returned to the country, of which amount \$434,962 came from Canada, \$46,518 from West Indies, \$32,096 from South America, and the remainder from various countries.

Foreign silver coins of the value of \$1,880,429 were also imported, of which \$1,325,217 came from Mexico, \$452,774 from Central America, \$43,075 from Great Britain, \$36,261 from South America, \$10,172 from West Indies, and the remainder from various countries.

Foreign silver ore and base bullion imported contained \$16,038,664, of which amount \$13,935,726 came from Mexico, \$1,913,326 from Canada, \$189,567 from South America, \$26 from Australasia, and \$19 from Central America.

SILVER IMPORTS, CALENDAR YEAR 1903.

Classification.	Amount.
Foreign bullion	\$5, 536, 292
Foreign coin	1, 880, 429
Silver in ore and base bullion.....	16, 038, 664
Total foreign	23, 455, 385
United States coin.....	519, 123
Total silver imports	23, 974, 508

GOLD EXPORTS.

The total value of gold exported from the United States during the calendar year 1903 was \$44,346,834 against \$36,030,591 for the calendar year 1902, an increase of \$8,316,243.

Of the gold exported \$42,147,691 was domestic and \$2,199,143 was foreign.

The value of United States assay office bars exported was \$23,352,516, of which amount \$20,275,981 went to France and \$3,076,535 to Germany.

Other domestic bullion was exported to the value of \$1,280,926, of which amount \$1,206,597 went to Japan and Hongkong and \$74,329 to Canada.

The value of domestic gold coin exported was \$16,936,595, of which amount \$7,683,855 went to South America; \$7,418,303 to Canada, \$1,099,519 to West Indies, \$444,000 to Japan, \$90,727 to Mexico, \$89,314 to Hongkong, \$50,000 to the Philippines, \$40,672 to Central America, and \$20,205 to various countries.

The value of gold in domestic ores and copper matte exported was \$577,654, of which amount \$570,904 went to Canada and \$6,750 to Germany.

Foreign gold coin of the value of \$2,195,127 was exported, of which amount \$1,299,375 went to West Indies, \$863,594 to Canada, \$14,000 to France, \$8,803 to Germany, and the remainder to various countries.

Foreign gold bullion to the amount of \$196 was exported, all of which went to Canada.

Foreign gold ore and base bullion to the value of \$3,820 was exported, all of which went to Canada.

GOLD EXPORTS, CALENDAR YEAR 1903.

Classification.	Amount.
United States assay office bars.....	\$23, 352, 516
Other bullion.....	1, 280, 926
United States coin.....	16, 936, 595
Gold ore and base bullion.....	577, 654
Total domestic	42, 147, 691
Foreign bullion exported	\$196
Foreign coin exported	2, 195, 127
Foreign ore and base bullion exported	3, 820
	2, 199, 143
Total gold exports.....	44, 346, 834

SILVER EXPORTS.

The value of silver exported during the calendar year 1903 amounted to \$40,635,342 against \$49,272,954 during the calendar year 1902, showing a decrease of \$8,637,612. The domestic exports amounted to \$33,483,395 and the foreign to \$7,151,947.

Of the domestic exports of silver bullion \$28,235,315 went to Great Britain, \$3,108,781 went to France, \$1,654,052 to Hongkong, \$149,952 to Canada, \$1,826 to South America, and \$804 to British West Indies.

The value of silver in domestic ores and base bullion exported was \$79,247, of which \$75,086 went to Canada, \$3,261 to Great Britain, and \$900 to Germany.

There was exported domestic silver coin amounting to \$253,418, of which \$163,477 went to the West Indies, \$39,675 to Canada, \$25,000 to Hawaii, \$15,500 to Central America, \$5,215 to South America, \$3,001 to Mexico, and \$1,550 to Great Britain.

Foreign silver coin amounting to \$1,637,165 was exported, of which \$564,669 went to Hongkong, \$472,700 to Great Britain, \$263,053 to South America, \$113,310 to Canada, \$79,935 to Central America, \$45,516 to Mexico, \$43,280 to the Philippines, \$36,280 to the West Indies, and the remainder to various countries.

Silver bullion refined from foreign ore valued at \$5,514,782 was exported, of which \$4,574,115 went to Great Britain and \$940,667 to France.

SILVER EXPORTS, CALENDAR YEAR 1903.

Classification.	Amount.
Silver bullion	\$33,150,730
United States coin	253,418
Silver in ore and base bullion.....	79,247
Total domestic	33,483,395
Foreign coin reexported	\$1,637,165
Silver refined from foreign ore and base bullion.....	5,514,782
	7,151,947
Total silver exports	40,635,342

In the appendix will be found tables exhibiting the imports and exports of the precious metals, by customs districts and by countries, for the calendar year 1903, compiled and kindly furnished by the Bureau of Statistics, Department of Commerce and Labor, for use in this report.

MOVEMENT OF GOLD FROM THE PORT OF NEW YORK.

The superintendent of the United States assay office at New York has prepared the following tables giving exports of gold through the port of New York during the calendar year 1903:

STATEMENT OF UNITED STATES GOLD COIN AND GOLD BULLION EXPORTED FROM THE PORT OF NEW YORK TO EUROPE DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

Date.	Country.	Amount.	Rate of exchange.
April 28.....	France	\$505,000	\$4.87½
May 11.....	do	1,503,447	4.88
May 18.....	do	2,327,929	4.88
May 20.....	do	1,278,675	4.88
May 26.....	do	1,212,613	4.88
June 2.....	Germany	1,213,002	4.88
June 3.....	France	3,522,988	4.88
June 8.....	Germany	251,282	4.87½
June 22.....	France	1,268,815	4.87½
Do.....	Germany	1,311,918	4.87½
June 24.....	France	1,516,196	4.87½
	Germany, in ore.....	6,750	.....
July 6.....	France	2,788,467	4.87½
July 8.....	do	1,509,731	4.87½
July 10.....	do	2,842,120	4.87½
July 15.....	Germany	300,333	4.87
Total		23,359,266	.....

RECAPITULATION OF GOLD EXPORTS TO EUROPE.

Classification.	France.	Germany.	Total.
Foreign coins	\$14,000		
New York assay office bars	20,275,541	\$3,074,791	
Bullion	1,744	440	
In ore		6,750	
Total	20,291,285	3,081,981	\$23,373,266
During the same period there were shipped to West Indies, Mexico, and Central and South America the following:			
United States coins			8,872,171
Foreign coins			1,299,375
Grand total of exports			33,544,812

The imports during the same period were as follows:

From Europe:			
United States coins	\$1,165,717		
Foreign coins	6,248,346		
Bullion	12,984,874		
			\$20,398,937
From Mexico, West Indies, Central, and South America:			
United States coins	401,376		
Foreign coins	1,157,207		
Bullion	911,030		
n ore and base bullion	819,826		
			3,289,439
Total of imports			23,688,376

NOTE.—In comparing the imports with the deposits received at the New York assay office during 1903, less the amount received from Mexico and Canada (which presumably did not pass through the custom-house at this port), you will note a difference of about \$1,300,000, which closely agrees with the amount of foreign gold coins received from France and shipped to Cuba (\$1,295,055).

IMPORTS AND EXPORTS OF THE PRECIOUS METALS IN THE PRINCIPAL COUNTRIES OF THE WORLD.

The imports and exports of the precious metals during the calendar year 1903 of those countries from which direct returns have been received are exhibited in the following table. The information relating to foreign countries was received principally through representatives of the United States in them.

IMPORTS AND EXPORTS OF THE PRECIOUS METALS IN THE PRINCIPAL COUNTRIES OF THE WORLD, 1903.

GOLD.

Country.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
United States	\$65,267,696	\$41,346,834	\$20,920,862	.....
Africa ^a	49,754	69,568,710	.....	\$69,518,956
Argentina	7,399,832	2,866,784	4,533,048	.....
Austria-Hungary	25,440,892	12,934,185	12,506,707	.....
Brazil .....	.....	2,106,135	.....	2,106,135
Costa Rica	149,475	228,237	.....	78,762
Cuba	3,330,943	1,129,572	2,201,371	.....
China	2,562,547	2,392,998	169,549	.....
Denmark	2,144,000	134,000	2,010,000	.....
Ecuador	107,225	701,020	.....	593,795
Egypt	31,141,276	8,757,553	22,383,723	.....
France	62,507,489	24,482,629	38,024,860	.....
Great Britain	143,499,507	135,125,731	8,373,776	.....
Germany	66,822,308	21,808,892	45,013,416	.....
Guiana (British) .....	.....	1,601,380	.....	1,601,380
Guiana (Dutch) .....	.....	375,176	.....	375,176
Guiana (French) .....	.....	2,873,066	.....	2,873,066
Honduras .....	.....	172,351	.....	172,351
India (British) ^b	65,363,404	33,144,789	32,218,615	.....
Italy	27,156,142	1,137,233	26,018,909	.....
Japan	12,637,116	8,322,398	4,314,718	.....
Korea	49,841	2,789,080	.....	2,739,236
Norway	578	.....	578	.....
Nicaragua .....	.....	1,900,000	.....	1,900,000
Peru	1,880,466	130,537	1,749,929	.....
Portugal .....	.....	.....	.....	.....
San Salvador ^b	8,600	947,120	.....	938,520
Siam .....	.....	4,740	.....	4,740
Sweden	965,416	.....	965,416	.....
Switzerland	11,651,901	5,564,542	6,087,359	.....
Spain	44,445	33,875	10,570	.....

SILVER.

United States	\$23,974,508	\$40,635,342	.....	\$16,660,834
Africa ^a	1,588,402	1,262,954	\$325,448	.....
Argentina	130,800	1,200	129,600	.....
Austria-Hungary	2,769,444	2,601,074	168,370	.....
Brazil .....	.....	.....	.....	.....
Costa Rica .....	.....	.....	.....	.....
Cuba	275,711	96,000	179,711	.....
China	14,812,617	18,602,613	.....	3,789,996
Denmark .....	.....	.....	.....	.....
Ecuador .....	.....	4,725	.....	4,725
Egypt	1,029,439	76,389	953,050	.....
France	25,379,114	20,305,337	5,073,777	.....
Great Britain	56,595,962	55,802,822	793,140	.....
Germany	5,701,290	5,636,316	64,974	.....
Guiana (British) .....	.....	.....	.....	.....
Guiana (Dutch) .....	.....	.....	.....	.....
Guiana (French) .....	.....	.....	.....	.....
Honduras .....	.....	894,828	.....	894,823
India (British) ^b	64,829,455	19,647,856	45,181,599	.....
Italy	3,341,892	339,216	3,002,676	.....
Japan	1,222,127	1,147,800	74,327	.....
Korea	136,288	45,171	91,117	.....
Mexico .....	.....	.....	.....	.....
Netherlands .....	.....	.....	.....	.....
Norway	146,326	77,610	68,686	.....
Nicaragua .....	.....	226,000	.....	226,000
Peru .....	.....	2,950,627	.....	2,950,627
Portugal .....	.....	.....	.....	.....
San Salvador ^b .....	.....	.....	.....	.....
Siam	5,611,857	700,084	4,911,773	.....
Straits Settlements .....	.....	.....	.....	.....
Sweden	91,097	483	93,614	.....
Switzerland	6,369,121	1,716,559	4,652,565	.....
Spain	3,350,416	212,123	3,138,293	.....

^a Annual statement of the trade of the United Kingdom with foreign countries and with British possessions.
^b Fiscal year ended March 31.

VALUE OF GOLD AND SILVER IMPORTED INTO AND EXPORTED FROM THE UNITED STATES FROM AND INTO THE UNITED KINGDOM.

GOLD BULLION AND COIN.

Calendar year.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1874	\$44,261	\$21,941,783		\$21,897,522
1875	2,806,311	40,185,922		37,379,611
1876	17,150,938	21,274,902		4,123,964
1877	5,682,271	10,031,324		4,352,053
1878	4,032,112	4,216,010		183,898
1879	33,817,688	1,889,418	\$31,928,270	
1880	26,823,600	269,431	26,554,169	
1881	35,947,633	112,859	35,834,774	
1882	448,701	29,684,594		29,235,893
1883	4,562,437	47,580	4,514,857	
1884	10,627,477	24,683,345		14,055,868
1885	1,456,700	530,665	926,035	
1886	14,575,484	12,556,212	2,019,272	
1887	8,568,758	180,110	8,388,648	
1888	19,169	10,956,287		10,937,118
1889	50,125	13,608,778		13,558,653
1890	4,923,034	12,624,961		7,701,927
1891	15,391,766	37,351,283		21,959,517
1892	641,385	5,110,827		4,469,442
1893	28,796,540	20,595,062	8,201,478	
1894	1,459,590	15,799,647		14,340,057
1895	16,146,069	54,173,664		38,027,595
1896	51,236,371	15,431,560	35,804,811	
1897	5,881,000	331,195	5,549,805	
1898	53,250,031	236,011	53,014,020	
1899	6,441,786	11,577,627		5,135,841
1900	5,267,986	28,569,927		23,301,941
1901	253,301	1,283,861		1,030,560
1902	248,970	1,877,739		1,628,769
1903	18,606,241	145,528	18,460,713	
Total	375,157,735	397,281,112	231,196,852	253,320,229
Excess		22,123,377		22,123,377

SILVER BULLION AND COIN.

1874	\$122,879	\$16,918,981		\$16,796,102
1875	43,448	15,481,341		15,437,893
1876	1,841,683	12,834,099		10,992,416
1877	1,449,682	12,730,380		11,280,698
1878	5,269,384	7,870,002		2,600,618
1879	2,989,588	12,632,115		9,642,527
1880	163,125	5,832,816		5,669,691
1881	152,531	12,644,788		12,492,257
1882	143,172	9,355,681		9,212,509
1883	236,755	13,643,442		13,406,687
1884	40,548	12,795,566		12,755,018
1885	29,253	13,648,158		13,618,905
1886	13,943	8,259,345		8,245,402
1887	172,026	10,773,185		10,601,159
1888	157,280	11,600,485		11,443,205
1889	151,591	19,348,927		19,197,336
1890	3,161,262	19,746,841		16,585,579
1891	41,755	19,387,377		19,345,622
1892	88,794	26,807,663		26,718,869
1893	14,780	35,371,119		35,356,339
1894	10,847	35,267,598		35,256,751
1895	37,054	39,335,554		39,298,500
1896	32,182	49,352,583		49,320,401
1897	70,034	49,092,031		49,021,997
1898	39,521	45,547,496		45,507,975
1899	88,994	42,929,713		42,840,719
1900	139,479	55,768,202		55,628,723
1901	350,388	47,297,479		46,947,091
1902	32,061	39,238,740		39,206,679
1903	201,994	36,971,730		36,769,736
Total	17,286,033	738,483,437		721,197,404
Excess		721,197,404		

The following table exhibits the value of gold and silver bullion and coin imported into and exported from the United States from and into France since 1879:

VALUE OF GOLD AND SILVER IMPORTED INTO AND EXPORTED FROM THE UNITED STATES FROM AND INTO FRANCE.

GOLD BULLION AND COIN.

Fiscal year.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1879	\$1,230,447	\$128,424	\$1,102,023	.....
1880	33,383,297	2,649	33,380,648	.....
1881	18,219,558	450	18,219,108	.....
1882	1,495,006	2,590,050	.....	\$1,095,044
1883	104,220	.....	104,220	.....
1884	3,969,915	5,015,767	.....	1,045,852
1885	3,113,347	6,300	3,107,047	.....
1886	4,427,555	11,578,912	.....	7,151,357
1887	12,433,314	37,135	12,396,179	.....
1888	9,570,658	44,166	9,526,492	.....
1889	1,558,341	23,026,482	.....	21,468,141
1890	2,353,764	5,431,373	.....	3,077,609
1891	472,850	14,659,015	.....	14,186,165
1892	15,845,817	13,061,100	2,784,717	.....
1893	5,399,599	32,240,402	.....	26,840,803
1894	10,742,507	15,450,000	.....	4,707,493
1895	7,845,583	28,625,400	.....	20,779,817
1896	3,933,491	7,534,361	.....	3,600,870
1897	16,444,810	13,989,041	2,455,769	.....
1898	22,799,157	4,016,535	18,782,622	.....
1899	10,962,144	7,000,000	3,962,144	.....
1900	638,486	14,024,240	.....	13,385,754
1901	1,404,380	21,742,600	.....	20,338,220
1902	1,408,997	30,133,729	.....	28,724,732
1903	5,879,360	17,811,790	.....	11,932,430
Total	195,636,603	268,149,921	105,820,969	178,334,287
Excess .....	.....	72,513,318	.....	72,513,318

SILVER BULLION AND COIN.

1879	\$259,097	\$126,666	\$132,431	.....
1880	24,274	89,431	.....	\$65,157
1881	1,267	75,850	.....	74,583
1882	21,064	810,400	.....	789,336
1883	212	1,381,214	.....	1,381,002
1884	1,635	796,788	.....	795,153
1885	919	830,115	.....	829,196
1886	146,477	585,157	.....	438,680
1887	70,139	980,713	.....	910,574
1888	227,566	601,809	.....	374,243
1889	1,906	371,850	.....	369,944
1890	1,351	134,535	.....	133,184
1891 .....	.....	399,684	.....	399,684
1892	360,433	1,412,624	.....	1,052,191
1893	1,351	462,898	.....	461,547
1894	21,595	201,000	.....	179,405
1895	5,126	1,500	3,626	.....
1896	8,133	3,435,326	.....	3,427,193
1897	2,722	1,632,866	.....	1,630,144
1898	24,718	1,062,250	.....	1,037,532
1899	4,424	2,056,408	.....	2,051,984
1900	8,288	1,021,465	.....	1,013,177
1901	5,513	1,165,961	.....	1,160,448
1902	837	1,050,626	.....	1,049,789
1903	698	1,141,999	.....	1,141,301
Total	1,199,745	21,829,135	136,057	20,765,447
Excess .....	.....	20,629,390	.....	20,629,390

The following table exhibits the value of gold and silver bullion and coin imported into and exported from the United States and from and into Germany since 1879:

VALUE OF GOLD AND SILVER IMPORTED INTO AND EXPORTED FROM THE UNITED STATES FROM AND INTO GERMANY.

GOLD BULLION AND COIN.

Fiscal year.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1879		\$6,600		\$6,600
1880	\$3,128,185	15,850	\$3,112,335	
1881	31,406,112	4,157	31,401,955	
1882	4,596,964	82,560	4,514,404	
1883	2,299,665	32,600	2,267,065	
1884	3,079,605	1,115,674	1,963,931	
1885	7,938,164	57,039	7,881,125	
1886	5,921,677	3,882,799	2,038,878	
1887	12,744,269	2,000,180	10,744,089	
1888	18,265,659	6,637,241	11,628,418	
1889	1,259,139	8,709,652		7,450,513
1890	1,756,884	2,297,808		540,924
1891	2,758,812	16,530,377		13,771,565
1892	3,920,742	19,308,050		15,387,308
1893	478,811	37,913,100		37,434,289
1894	14,437,867	28,811,650		14,373,783
1895	1,376,762	14,857,754		13,480,992
1896	119,016	29,020,672		28,901,656
1897	3,554,697	18,478,682		14,923,985
1898	8,428,050	1,260,840	7,167,210	
1899	190,996	3,018,000		2,827,004
1900	12,946	4,768,189		4,755,243
1901	756,332	8,408,166		7,651,834
1902	15	8,604,368		8,604,353
1903		6,136,146		6,136,146
Total	128,431,369	221,958,154	82,719,410	176,246,195
Excess		93,526,785		93,526,785

SILVER BULLION AND COIN.

1879	\$45,399	\$348,432		\$303,033
1880	15,465	383,830		368,365
1881	96,231	472,029		375,798
1882	296,697	649,628		352,931
1883	271,052	335,455		64,403
1884	39,194	1,914,560		1,875,366
1885	9,538	282,609		273,071
1886	34,386	99,333		64,947
1887	177,855	83,389	\$94,466	
1888	135,078	151,276		16,198
1889	19,015	575	18,440	
1890	750,633	32,712	717,921	
1891	845,901	910	844,991	
1892	91,413	107,666		16,253
1893	9,688	4,500	5,188	
1894	1,905	94,950		93,045
1895	12,328	81,317		68,989
1896	3,311	10,179		6,868
1897	12,573	17,221		4,648
1898	3,240	945	2,295	
1899	1,940	59,612		57,672
1900	5,369	17,800		12,431
1901	318	37,567		37,249
1902		2,870		2,870
1903	5	5,750		5,745
Total	2,878,534	5,195,115	1,683,301	3,999,882
Excess		2,316,581		2,316,581

MARKET PRICE OF SILVER DURING THE CALENDAR YEAR 1903.

In the early months of the year silver ruled at a very low price, the lowest recorded being $21\frac{1}{8}$ pence per standard ounce on January 22, equivalent, with New York exchange at par, to 47.541 cents per fine ounce. The price did not go above $22\frac{1}{8}$ pence between that time and March, when the Indian council came into the market as moderate purchasers and gave the first impetus to a rise. Shortly after this the United States Government began to purchase silver for coinage for the Philippines, which with other factors caused an advance in April of more than 2 pence per ounce, the demand being further increased by purchases on the part of the French Government for colonial coinages, which continued throughout the year and amounted to a total of about £1,000,000. The Siamese Government was also in the market.

From September the Indian council was an almost continuous purchaser of silver, and there was also much speculation on account of the Indian bazars. The purchases in the United States for the Philippine coinage aggregated during the year 13,939,669.09 fine ounces.

During the year a number of currency schemes were broached which, based upon the Indian pattern, were designed gradually to protect business in the Orient from the ill effects of fluctuations in the value of silver, Siam, the Straits Settlements, the Philippines, and the Indo-China peninsula all having adopted systems in which it is hoped that, while the currency remains silver, the value of the coins will cease to fluctuate with the price of that metal.

The highest price of silver during the year— $28\frac{1}{2}$ pence, equivalent in New York to 62.475 cents per fine ounce—was reached October 19, but it was soon followed by a permanent reaction, due to the suspension of purchases by the United States Government for the Philippine coinage.

The general tendency of the market during the closing weeks of the year was fairly good, the average price in December having been 25.7355 pence, equivalent in New York, at the average rate of exchange, to 54.217 cents per fine ounce.

HIGHEST, LOWEST, AND AVERAGE PRICE OF SILVER BULLION AND VALUE OF A FINE OUNCE EACH MONTH, DURING THE CALENDAR YEAR 1903.

Month.	Highest.	Lowest.	Average price per ounce, British standard, 0.925.	Equivalent value of a fine ounce with exchange at par, \$4.8665.	Average monthly price at New York of exchange on London.	Equivalent value of a fine ounce based on average monthly price and average rate of exchange.	Average monthly New York price of fine bar silver.
	<i>Pence.</i>	<i>Pence.</i>	<i>Pence.</i>				
January	$22\frac{3}{8}$	$21\frac{1}{8}$	21.9838	\$0.48191	\$4.8689	\$0.48214	\$0.48213
February	$22\frac{5}{16}$	$21\frac{7}{8}$	22.1093	.48466	4.8753	.48553	.48479
March	$22\frac{1}{2}$	$22\frac{1}{8}$	22.5000	.49322	4.8702	.49359	.49355
April	$25\frac{7}{16}$	$22\frac{3}{8}$	23.3550	.51196	4.8718	.51253	.51255
May	$25\frac{1}{4}$	$24\frac{5}{8}$	24.8894	.54560	4.8813	.54709	.54775
June	$24\frac{9}{16}$	$24\frac{1}{8}$	24.3300	.53334	4.8779	.53457	.53519
July	$25\frac{1}{4}$	$24\frac{1}{2}$	24.8611	.54498	4.8675	.54509	.54500
August	$26\frac{1}{4}$	$25\frac{5}{16}$	25.6009	.56120	4.8582	.56025	.56076
September	$27\frac{9}{16}$	$26\frac{1}{4}$	26.7524	.58644	4.8635	.58608	.58605
October	$28\frac{3}{8}$	$27\frac{7}{16}$	27.8935	.61145	4.8564	.61064	.60963
November	$27\frac{3}{8}$	$26\frac{1}{4}$	27.0050	.59198	4.8396	.58898	.58745
December	$26\frac{7}{16}$	25	25.7355	.56415	4.8387	.56092	.56014
Average			24.7513	.54257	4.8641	.54217	.54208

EXPORTS OF SILVER TO THE EAST.

The exports of silver from London to India, China, and the Straits since 1881 have been as follows:

Calendar year.	India.	China.	Straits.	Total.
1881	\$12,375,612	\$3,898,860	\$3,577,729	\$19,852,201
1882	18,604,945	1,584,318	7,351,255	27,543,518
1883	18,040,140	4,212,574	11,189,631	33,442,345
1884	26,073,909	5,018,711	8,136,097	39,228,720
1885	30,913,667	3,160,315	3,108,146	37,182,128
1886	21,159,591	1,769,425	2,892,061	25,821,080
1887	19,798,328	1,427,179	2,766,946	23,992,453
1888	21,162,116	1,153,002	3,219,321	25,534,439
1889	28,392,786	2,731,861	8,181,141	39,305,788
1890	35,673,177	1,284,498	4,441,197	41,398,872
1891	21,717,992	1,177,620	10,754,800	33,650,412
1892	35,180,897	719,668	18,622,825	54,523,390
1893	34,319,877	11,635,650	7,847,295	53,802,822
1894	24,391,351	13,279,564	6,002,565	43,673,480
1895	17,638,610	8,042,003	3,668,772	29,349,385
1896	23,874,942	3,602,597	4,025,257	31,502,796
1897	28,250,305	2,721,522	3,597,331	34,569,158
1898	20,984,625	3,721,656	1,971,443	26,677,724
1899	25,597,912	6,929,117	1,396,223	33,923,252
1900	37,916,065	11,252,496	3,922,477	53,091,038
1901	36,987,395	4,101,764	3,150,630	44,239,789
1902	30,987,195	991,793	5,363,710	37,342,698
1903	36,125,636	1,508,907	3,999,674	41,634,217

VALUE OF NET IMPORTS OF SILVER INTO INDIA SINCE 1835.

The net imports in value of silver into India, average exchange rate of India rupee in London, and amount of council bills sold, by fiscal years ended March 31, is shown by the following table:

Year	Net imports of silver.	Average rate of Indian rupee.	Amount of council bills sold.	Year.	Net imports of silver.	Average rate of Indian rupee.	Amount of council bills sold.
		<i>Pence.</i>				<i>Pence.</i>	
1835-36	^a 16,118,960	22½	\$9,953,224	1870-71	\$4,273,507	22½	\$41,090,337
1836-37	\$6,176,311	22½	9,988,522	1871-72	30,574,254	23½	50,175,265
1837-38	9,173,294	23	8,303,119	1872-73	3,298,985	22½	67,834,606
1838-39	12,671,392	23½	11,419,685	1873-74	11,311,401	22.351	64,654,752
1839-40	7,864,683	23½	7,005,448	1874-75	20,916,698	22.221	52,760,715
1840-41	6,679,118	23½	5,715,461	1875-76	6,826,414	21.615	60,294,052
1841-42	5,887,052	22½	12,600,746	1876-77	29,911,149	20.491	61,784,106
1842-43	14,068,739	23½	5,827,332	1877-78	61,869,640	20.79	49,319,325
1843-44	17,237,334	23	13,634,624	1878-79	15,910,390	19.761	67,880,692
1844-45	8,719,684	21½	12,248,742	1879-80	31,852,848	19.961	74,271,598
1845-46	4,112,529	21½	14,919,273	1880-81	15,751,280	19.956	74,163,888
1846-47	6,322,979	22½	15,071,750	1881-82	21,699,764	19.895	89,604,086
1847-48	2,204,565	22	7,503,189	1882-83	29,614,971	19.525	73,580,015
1848-49	1,344,618	21½	9,193,767	1883-84	25,372,923	19.536	85,649,451
1849-50	5,810,633	22½	14,283,752	1884-85	28,367,364	19.308	66,957,731
1850-51	10,410,803	24½	15,750,223	1885-86	12,960,530	18.254	50,089,386
1851-52	14,016,886	21½	13,516,816	1886-87	25,306,454	17.441	59,061,202
1852-53	22,293,629	23½	16,152,235	1887-88	31,623,459	16.899	74,742,515
1853-54	11,279,345	24½	18,738,775	1888-89	30,709,917	16.379	69,410,203
1854-55	138,797	23½	17,860,191	1889-90	36,741,437	16.566	75,306,635
1855-56	40,085,623	24½	7,222,084	1890-91	51,993,287	18.089	77,713,304
1856-57	56,413,954	25½	13,722,119	1891-92	30,611,949	16.733	78,320,740
1857-58	61,012,039	24½	3,059,077	1892-93	39,083,615	14.984	80,454,024
1858-59	^a 77,283,420	(b)	124,451	1893-94	40,466,665	14.546	46,378,884
1859-60	^a 111,475,630	(b)	22,843	1894-95	16,812,318	13.100	82,268,679
1860-61	^a 53,280,090	(b)	3,879	1895-96	18,206,409	13.641	85,278,507
1861-62	\$43,988,930	23½	5,809,277	1896-97	17,163,165	14.454	76,028,915
1862-63	60,757,238	23½	32,321,230	1897-98	26,447,429	15.393	44,271,918
1863-64	61,950,883	23½	43,698,839	1898-99	16,442,585	15.979	91,064,157
1864-65	48,793,010	23½	33,040,970	1899-1900	11,653,240	16.068	92,495,079
1865-66	89,904,731	23½	33,900,604	1900-1901	30,792,023	15.973	65,501,810
1866-67 ^c	32,474,026	23	24,661,422	1901-2	23,318,450	15.988	89,441,377
1867-68	26,230,510	23½	20,134,097	1902-3	22,373,295	16.0018	90,029,987
1868-69	40,330,842	23½	18,033,989	1903-4	45,317,144	16.0491	116,111,293
1869-70	34,500,818	23½	33,968,764				

^a Rupees.

^b From 1858-59 to 1860-61, inclusive, the home treasury was opened at all times for the sale of bills on India, at rates altered from time to time by advertisement. Consequent on the mutiny, it was necessary to refrain from drawing on India, and exchange was raised to a prohibitory rate,

^c Eleven months.

GOLD AND SILVER IMPORTED INTO AND EXPORTED FROM BRITISH INDIA IN EACH FISCAL YEAR ENDING MARCH 31, FROM 1873-74 (BRITISH STANDARD OUNCES).

[From Financial and Commercial Statistics of British India.]

Period.	Gold.			Silver.		
	Imported.	Exported.	Net im-ports.	Imported.	Exported.	Net im-ports.
	Ounces.	Ounces.	Ounces.	Ounces.	Ounces.	Ounces.
1873-74			331,554			8,747,151
1874-75			446,964			16,269,590
1875-76			355,985			5,451,074
1876-77			62,696			25,229,986
1877-78			102,628			51,436,354
1878-79			177,101			13,916,146
1879-80			374,227			27,581,194
1880-81			777,533			13,642,358
1881-82			1,028,240			18,852,031
1882-83			1,048,810			26,216,055
1883-84			1,138,584			22,448,221
1884-85			973,053			25,393,863
1885-86			544,437			40,677,913
1886-87			393,174			25,078,814
1887-88	569,684	41,646	528,038	37,877,141	5,094,542	32,782,599
1888-89	512,287	50,710	461,577	37,844,665	5,408,636	32,436,029
1889-90	850,232	76,848	773,384	43,940,659	5,296,885	38,643,774
1890-91	1,175,875	161,646	1,014,229	56,190,870	4,661,785	51,529,085
1891-92	709,102	285,454	423,648	38,177,580	5,829,142	32,348,438
1892-93	272,442	726,925	—454,483	54,180,144	8,656,632	45,523,512
1893-94	474,635	378,399	96,236	60,328,296	5,999,323	54,328,973
1894-95	236,873	926,843	—689,970	32,638,069	5,598,047	27,040,022
1895-96	695,055	372,432	322,623	34,082,810	7,064,731	27,018,079
1896-97	657,238	347,873	309,365	37,520,322	11,591,234	25,929,088
1897-98	1,129,149	397,114	732,035	68,535,612	24,250,995	44,284,617
1898-99	1,432,461	410,461	1,022,000	49,226,780	26,061,355	23,165,425
1899-1900	1,914,037	353,225	1,560,812	50,663,542	32,017,260	18,646,282
1900-1901	1,987,738	1,881,060	106,678	64,746,549	15,311,385	49,435,164
1901-2	1,372,249	1,097,743	274,506	66,726,972	27,721,780	39,005,192
1902-3	2,187,384	770,766	1,416,618	75,167,077	32,294,876	42,872,201
1903-4	3,332,977	1,764,229	1,568,748	104,324,765	25,749,296	78,575,469

NOTE.—The quantities in the column “net imports” for both gold and silver, for the years 1873-74 to 1886-87 are estimated only, deduced from the declared values of the trade for those years by the following process:

For gold, the rupee value of the monthly net imports was converted into sterling at the average rate of exchange in each month, and this sterling value was then divided by the English mint price of gold (£3 17s. 10½d.). For silver the average price of 107 rupees per 100 tolas, or 285.33 rupees per 100 ounces, was taken as the basis of the value of the annual imports.

IMPORTS AND EXPORTS OF BULLION INTO AND FROM LONDON.

The imports and exports of bullion into and from various countries during the calendar year 1903 were as follows:

Country.	Imports.		Exports.	
	Gold.	Silver.	Gold.	Silver.
Austria			\$7,171,031	\$132,807
Belgium	\$4,139,820	\$346,787	483,487	336,275
France	1,326,399	2,292,798	12,827,048	6,098,795
Germany	639,302	1,376,728	32,319,015	1,660,566
Holland	3,641,130	102,367	912,225	171,495
Sweden and Denmark			973,300	96,084
Russia		681	973	637,512
Spain, Portugal, etc.	1,244,836	171,967	5,416	418,465
Gibraltar	73,922	79,704	24,333	195
Malta	85,164		779,127	
Egypt	1,325,790	80,010	22,267,732	274,042
Aden				
Ceylon				
Bombay				
Madras				
Calcutta				
Singapore				
Penang				
Manila				
	21,089,664	4,406,694	12,897,490	37,534,726

Imports and exports of bullion into and from London—Continued.

Country.	Imports.		Exports.	
	Gold.	Silver.	Gold.	Silver.
Hongkong	\$312,989	\$360,807	\$107,063	\$1,649,262
Shanghai				
Japan	268	15,534	3,649,875	.....
West coast of Africa	1,345,407	940,865	187,453	1,338,360
British South Africa	68,229,517	338,285	884,579	257,993
United States				
Mexico, South America (except Brazil), West Indies, etc	145,528	36,971,730	18,696,241	201,994
Brazil	4,814,599	988,839	13,866,556	430,831
British North America	2,146,964	1,484	3,376,378	4,876
Australia			243,325	288,068
New Zealand	25,754,345	1,354,619	.....	154,755
Other countries	2,557,900	212,729	.....	341,142
	587,659	132,593	3,453,083	3,774,579
Total	139,461,203	50,175,221	135,125,730	55,802,822

STOCK OF MONEY IN THE UNITED STATES.

The stock of domestic coin in the United States on December 31, 1903, was as follows: Gold, \$1,110,920,555; silver, \$665,971,894; a total of \$1,776,892,449.

OFFICIAL TABLE OF STOCK OF COIN IN THE UNITED STATES DECEMBER 31, 1903.

Items.	Gold.	Silver.	Total.
Estimated stock of coin Dec. 31, 1902	\$1,088,036,700	\$649,159,130	\$1,737,195,830
Net imports United States coin calendar year 1903		265,705	265,705
Coinage calendar year 1903	43,683,971	19,874,440	63,558,411
Total	1,131,720,671	669,299,275	1,801,019,946
Loss:			
Net exports United States coin calendar year 1903 ..			
United States and Hawaiian coin melted for recoinage (face value)	13,180,739	.....	13,180,739
United States coin taken out in transports for disbursement in the Philippine Islands, not recorded at the custom-house, calendar year 1903	2,119,377	3,227,381	5,346,758
United States coin estimated to have been used in the arts calendar year 1903	2,000,000	.....	2,000,000
	3,500,000	100,000	3,600,000
Total	20,800,116	3,327,381	24,127,497
Estimated stock of coin in the United States Dec. 31, 1903	1,110,920,555	665,971,894	1,776,892,449

NOTE.—The number of standard silver dollars coined to Dec. 31, 1903, was 561,459,960, which, added to the Hawaiian dollar coinage of 500,000, equals 561,959,960. Since July 1, 1898, the number of standard silver dollars exported in transports has been 2,345,000 (deducting number returned from the Philippine Islands June, 1902—150,000). Since 1883 the number melted has been 179,481 (Report of the Director of the Mint, 1903, p. 17), and the number of Hawaiian dollars melted to Dec. 31, 1903, has been 436,000, a total disposition of 2,960,481, leaving in the United States Dec. 31, 1903, 558,999,479 standard silver dollars and \$106,972,415 in subsidiary silver coins.

In the Appendix will be found tables giving in detail the source from which these amounts were obtained.

On December 31, 1903, the cost value of the gold and silver bullion owned by the Government was as follows:

GOLD AND SILVER BULLION IN THE MINTS AND ASSAY OFFCES ON DECEMBER 31, 1903.

Metal.	Value.
Gold.....	\$209, 436, 811
Silver (cost)	13, 194, 512
Total	222, 631, 323

The Mercantile Safe Deposit Company, in New York City, had on deposit in its vaults, on the same date, 8,257 ounces (fine) of silver bullion of the commercial value of \$4,706, which, plus the stock of bullion in the mints and coin in the country, shows a total metallic stock as follows:

METALLIC STOCK IN THE UNITED STATES ON DECEMBER 31, 1903.

Bullion and coin.	Value.
Gold.....	\$1, 320, 357, 366
Silver (including amount held by Mercantile Safe Deposit Company).....	679, 171, 112
Total	1, 999, 528, 478

On December 31, 1902, the metallic stock was as follows:

METALLIC STOCK DECEMBER 31, 1902.

Bullion and coin.	Value.
Gold.....	\$1, 248, 008, 102
Silver (including amount held by Mercantile Safe Deposit Company)	673, 287, 786
Total	1, 921, 295, 888

The increase in the total stock as compared with the previous year was \$78,232,590, of which \$72,349,264 was in gold and \$5,883,326 in silver.

The location of the stock of metallic and paper money in the United States on December 31, 1903, was as follows:

LOCATION OF THE MONEYS OF THE UNITED STATES, DECEMBER 31, 1903.

Moneys.	In Treasury.	Outside of Treasury.	Total.
Metallic:			
Gold bullion	\$209,436,811		\$209,436,811
Silver bullion	13,194,512	\$4,706	
Gold coin	478,970,232	631,950,323	1,110,920,555
Silver dollars	478,048,731	80,950,748	558,999,479
Subsidiary silver coin	8,209,309	98,763,106	106,972,415
Total metallic	1,187,859,595	811,668,883	1,986,329,260
Paper:			
Legal-tender notes (old issue)	4,099,926	342,581,090	346,681,016
Legal-tender notes (act July 14, 1890)	101,678	15,804,322	15,906,000
National-bank notes	12,413,746	412,749,272	425,163,018
Total notes	16,615,350	771,134,684	787,750,034
Gold certificates	27,080,165	421,295,704	
Silver certificates	8,026,657	464,226,343	
Total certificates	35,100,822	885,522,047	
Grand total		2,468,325,614	2,774,079,294

GOLD AND SILVER USED IN INDUSTRIAL ARTS IN THE UNITED STATES DURING THE CALENDAR YEAR 1903.

Among the purveyors of gold and silver bars for use in the industrial arts the United States mint at Philadelphia and the United States assay office at New York hold the foremost places, which brings the larger portion of the total material consumed in the arts under Government notice as a matter of public record.

The following table gives the quantity and value of the bars issued for this purpose by the Government institutions during the calendar year 1903:

GOLD AND SILVER BARS ISSUED FOR USE IN THE INDUSTRIAL ARTS BY THE GOVERNMENT INSTITUTIONS DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

Material used.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
Domestic bullion (new material)	933,663.303	\$19,300,533.41	1,149,257.72	\$1,485,908.95
Old jewelry, etc	129,543.597	2,677,903.99	593,179.76	766,939.48
Foreign material	45,726.370	945,217.84	953,946.43	1,233,385.29
United States coin	50.027	1,034.16	6.17	7.97
Total	1,108,983.297	22,924,719.40	2,696,390.08	3,486,241.69

The United States coin shown in the above table was either mutilated or abraided.

BARS FOR INDUSTRIAL USE MANUFACTURED BY PRIVATE REFINERIES AND FURNISHED
 GOLDSMITHS AND OTHERS DURING THE CALENDAR YEAR 1903.

Material used.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
Domestic bullion (new material).....	31,145	\$643,832	13,867,098	\$17,929,177
United States coin	29,459	608,977	1,538	1,989
Foreign material.....	404	8,349	984	1,272
Old plate, jewelry, and other material.....	96,154	1,987,685	3,326,546	4,300,989
Total.....	157,162	3,248,843	17,196,166	22,233,427

The total consumption of the precious metals in the arts during the year, reported to this Bureau by Government institutions and private refineries, was as follows:

GOLD AND SILVER BARS FURNISHED MANUFACTURERS FOR USE IN THE ARTS DURING
 THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

Material used.	Gold.	Silver (coining value).	Total.
Domestic bullion (new material).....	\$19,944,365	\$19,415,086	\$39,359,451
United States coin.....	610,011	1,997	612,008
Foreign material	953,597	1,234,657	2,188,254
Old material.....	4,665,589	5,067,929	9,733,518
Total	26,173,562	25,719,669	51,893,231

Estimating that the amount of gold coin used in the arts during the calendar year has been \$3,560,000, and silver coin \$100,000, the total industrial consumption would be as follows:

INDUSTRIAL CONSUMPTION OF THE PRECIOUS METALS DURING THE CALENDAR YEAR 1903.

Material used.	Gold.	Silver (coining value).	Total.
Domestic bullion (new material)	\$19,944,365	\$19,415,086	\$39,359,451
United States coin.....	3,500,000	100,000	3,600,000
Foreign material	953,597	1,234,657	2,188,254
Old material.....	4,665,589	5,067,929	9,733,518
Total	29,063,551	25,817,672	54,881,223

The following table gives the amounts and the classification of gold and silver used in the industrial arts in the United States since 1880:

GOLD AND SILVER BARS FURNISHED FOR USE IN MANUFACTURES AND THE ARTS, AND
CLASSIFICATION OF THE MATERIAL USED, BY CALENDAR YEARS, SINCE 1880.

GOLD.

Calendar year.	United States coin.	New material.	Old material.	Foreign bullion and coin.	Total.
1880.....	\$3,300,000	\$6,000,000	\$395,000	\$4,267,600	\$10,962,600
1881.....	2,700,000	7,000,000	522,900	1,547,800	11,770,700
1882.....	2,500,000	7,000,000	696,500	671,500	10,868,000
1883.....	4,875,000	7,840,000	1,549,300	194,500	14,458,800
1884.....	5,000,000	6,000,000	3,114,500	385,500	14,500,000
1885.....	3,500,000	6,736,927	1,408,902	178,913	11,824,742
1886.....	3,500,000	7,003,480	1,928,046	638,003	13,069,529
1887.....	3,500,000	9,090,342	1,835,882	384,122	14,810,346
1888.....	3,500,000	9,893,057	2,402,976	718,809	16,514,842
1889.....	3,500,000	9,686,827	3,218,971	291,258	16,697,056
1890.....	3,500,000	10,717,472	3,076,426	362,062	17,655,960
1891.....	3,500,000	10,697,679	4,860,712	628,525	19,686,916
1892.....	3,500,000	10,588,703	4,468,685	771,686	19,329,074
1893.....	1,500,000	8,354,482	2,777,165	804,254	13,435,904
1894.....	1,500,000	6,430,073	2,184,946	543,585	10,658,604
1895.....	1,500,000	8,481,789	2,976,269	471,027	13,429,085
1896.....	1,500,000	7,209,787	2,369,343	316,804	11,395,934
1897.....	1,500,000	7,184,822	2,571,428	613,981	11,870,231
1898.....	1,500,000	9,463,262	2,164,976	437,641	13,565,879
1899.....	1,500,000	13,267,287	2,734,985	344,906	17,847,178
1900.....	1,500,000	14,582,627	3,480,612	584,903	20,148,142
1901.....	1,500,000	16,296,688	3,386,626	685,642	21,868,956
1902.....	1,500,000	18,653,625	4,677,549	851,673	25,682,847
1903.....	3,500,000	19,944,365	4,665,589	953,597	29,663,551
Total	64,875,000	238,123,294	63,468,288	14,648,291	381,114,873

SILVER (COINING VALUE).

1880.....	\$600,000	\$5,000,000	\$145,000	\$353,000	\$6,098,000
1881.....	200,000	5,900,000	178,000	371,000	6,649,000
1882.....	200,000	6,344,300	212,900	440,300	7,197,500
1883.....	200,000	4,623,700	561,900	155,000	5,540,600
1884.....	200,000	4,500,000	170,000	650,000	5,520,000
1885.....	200,000	4,539,875	462,186	62,708	5,264,769
1886.....	200,000	3,626,195	404,155	825,615	5,055,965
1887.....	200,000	4,102,734	480,606	654,991	5,438,331
1888.....	200,000	6,477,857	652,047	771,985	8,401,889
1889.....	200,000	7,297,933	611,015	657,997	8,766,945
1890.....	200,000	7,143,635	640,100	1,245,419	9,229,154
1891.....	200,000	7,289,073	858,126	1,256,101	9,603,300
1892.....	200,000	7,204,210	647,377	1,249,801	9,304,388
1893.....	100,000	6,570,737	1,222,836	1,740,704	9,634,277
1894.....	100,000	8,579,472	1,221,177	982,399	10,883,048
1895.....	100,000	9,825,387	1,378,136	973,501	12,277,024
1896.....	100,000	7,965,449	1,076,829	1,061,995	10,204,273
1897.....	100,000	9,200,497	1,103,460	797,193	11,201,150
1898.....	100,000	12,176,784	949,312	632,449	11,858,545
1899.....	100,000	10,845,942	2,047,584	684,137	15,677,663
1900.....	100,000	13,476,829	2,296,250	1,215,935	17,089,014
1901.....	100,000	15,268,742	1,562,535	1,342,590	18,273,867
1902.....	100,000	19,699,990	3,544,347	1,667,392	25,011,729
1903.....	100,000	19,415,086	5,067,929	1,234,657	25,817,672
Total	4,100,000	207,074,427	27,493,807	21,026,869	259,695,103

THE WORLD'S INDUSTRIAL CONSUMPTION.

Since 1893 this Bureau has endeavored to obtain, through the United States representatives abroad, official estimates from the various countries of the world of the consumption of precious metals in the arts and industries.

The interrogatories sent out by this Bureau for 1903 were as follows:

(4) What was the weight of fine gold used in the industrial arts during the calendar year 1903?

(5) What amount of this was new gold, what amount old gold, and what amount coins?

(6) What was the weight of fine silver used in the industrial arts during the calendar year 1903?

(7) What amount of this was new silver, what amount old silver, and what amount coins?

The reply "no data" was received from the following countries: Argentina, Brazil, British Guiana, Cape Colony, Chile, China, Colombia, Denmark, Egypt, Germany, Great Britain, Greece, Honduras, India, Italy, Japan, Korea, Mexico, New Zealand, Norway, Persia, Peru, Russia, Servia, Siam, Spain, Uruguay, and Victoria.

In the case of the countries enumerated below, sufficient information was elicited by the interrogatories for making the estimates given.

Austria.—Articles of gold (jewelry and wire) brought to the assay office to be stamped during the year 1903 show the domestic consumption of gold to have been as follows:

Description.	Gross weight.	Of the average fineness of 1902.	In fine gold.
Domestic articles of gold	<i>Kilograms.</i> 5,166.235	0.581926	<i>Kilograms.</i> 3,006.366
Plated wares (that is, the gold placed on the same, 2.5 per cent of 117.340 kilograms)			2.933
Wire (that is, the gold placed on the same, 1.66 per cent of 1,894.174 kilograms)			31.443
Total			3,040.742

No data are on hand to show the amount of gold consumed during the year 1903 for other industrial uses, such as gilding by fire and galvanism.

In the last three years the consumption of gold for these uses was as follows: 1900, 593.231 kilograms of fine gold; 1901, 343.376 kilograms; 1902, 418.522 kilograms. The average annual consumption, therefore, was 451.709 kilograms, which is assumed also to represent the amount used for these purposes in 1903.

Previous experience has shown that 27 per cent of the gold used for industrial purposes was old material; therefore, in 1903, 2,219.742 fine kilograms were new gold and 821.000 fine kilograms were old gold. The industrial consumption of new gold in Austria in 1903 appears to have been approximately 2,550 fine kilograms.

The articles brought to the Imperial assay office in Vienna during the year 1903 to be stamped show the domestic industrial consumption of silver to have been as follows:

Description.	Gross weight.	Of the average fineness of 1902.	Fine silver.
Domestic articles of silver	<i>Kilograms.</i> 58,639.930	0.796202	<i>Kilograms.</i> 46,689.250
Wire	2,431.707	.994	2,417.117
Total			49,106.347

There are no data showing the quantity of silver consumed during the year 1903 for other industrial purposes. The consumption in the last three years was as follows: 1900, 10,355.523 kilograms of fine silver; 1901, 8,453.797 kilograms; 1902, 11,250.113 kilograms. The annual average, 10,019.811 kilograms, is assumed to represent the consumption during 1903.

In addition to this, there must be taken into consideration the silver used for alloy in manufactured gold articles, which may be estimated at 10 per cent of the gross weight of the gold articles, or approximately 516.623 kilograms of fine silver.

According to previous experience it is assumed that 15 per cent of the weight of silver used for industrial purposes was old silver; therefore the consumption in 1903 appears to have been 42,179.525 kilograms fine new silver, and 7,443.445 kilograms fine old silver.

Hungary.—No data are on hand showing the amount of gold and silver used for industrial purposes. There were presented in the year 1903, at the royal Hungarian assay office, for the purpose of being officially stamped:

A.—Domestic goods.

	Kilograms.
(1) Gold ware	1,493.06
(2) Silver ware	10,669.74
(3) Gilded wire.....	185.66
(4) Silver wire.....	134.93

B.—Foreign goods.

(5) Miscellaneous gold ware	167.20
(6) Miscellaneous silver ware	1,335.41
(7) Gold watches	246.95
(8) Silver watches	1,522.55
(9) Gilded wire.....	24.87

For striking medals 0.509 kilograms of fine gold and 4.077 kilograms of fine silver were used.

The estimated consumption of new gold in Hungary in 1903 is 1,100 fine kilograms; silver, 9,200.

Costa Rica.—Practically none.

Cuba.—None.

Ecuador.—Practically none; silver very little.

France.—Fine gold used in the industrial arts during the calendar year 1903, 25,000 kilograms; fine silver, 274,000 kilograms; impossible to state what amount was new and what old material. Estimated new gold, 18,250 fine kilograms; new silver, 242,900 kilograms.

During the year gold ware to the amount of 11,800 kilograms and silver ware to the amount of 149,300 kilograms was hall-marked at the mint.

Great Britain.—No information available. The bureau of the mint has received no information as to the industrial gold consumption of England in 1903, and recourse is therefore had, as last year, to an estimate of the same. According to the memorandum by Mr. T. Kirke Rose, chemist and assayer, published in the report of the deputy master of the royal mint, London, the number of ounces of gold wares assayed and marked by the wardens of the assay offices at Birmingham, Chester, and Edinburgh in the fiscal year 1902-3 was 526,593.

In addition 2,270 pieces of gold ware, whose weight was not recorded, were marked at the assay office, Dublin; a small amount of gold plate and jewelry was also assayed and marked at the assay office, Glasgow.

These figures are far from representing the total industrial gold consumption of the United Kingdom, which must, if we are to be guided by earlier estimates, be placed at nearly twice these amounts.

Professor Lexis estimated it in 1895 at 500,000 ounces, or about 15,500 kilograms net, or, in other words, that the wares stamped represented approximately 60 per cent of the actual consumption of fine gold in the industrial arts.

On the assumption that the ratio of the marked to the unmarked wares remained the same, namely, 60 to 40, the total consumption in the fiscal year 1902-3 would be approximately 900,000 ounces. It has been found in certain countries that of the gold consumed for industrial purposes about 27 per cent was old material; assuming that in the United Kingdom the proportion was the same (but admitting that it may have deviated widely from this percentage), this Bureau estimates the consumption of new gold at 630,000 standard, or 577,500 fine ounces, equal to 17,962 kilograms.

The amount of silver marked in 1902-3 at Birmingham, Sheffield, Chester, Edinburgh, Dublin, and Glasgow was 6,295,441 ounces, in addition to which large numbers of small articles whose weight was not recorded were marked. If the stamped wares represent 60 per cent of the whole, the total consumption was 10,492,402 ounces. Assuming that 85 per cent of this was new material (a figure which has been found to represent the consumption in certain countries), the actual consumption of new silver for industrial purposes in the United Kingdom in 1902-3 is estimated at 8,918,542 standard or 8,249,651 fine ounces, equal to 256,593 kilograms.

Nicaragua.—Very little; all old silver and coin.

Sweden.—Gold, 600 kilograms, old and new material. New material estimated at 450 kilograms.

Switzerland.—Fine gold used in 1903, 8,700 kilograms, old and new, of the value of 30,000,000 francs. Considerable coin is melted up. Silver, 55,000 kilograms, of the value of 5,000,000 francs, old and new bullion, but no coin. New gold, estimated, 6,351 kilograms; new silver, 46,750 kilograms.

Tasmania.—No data. Fine silver would be inconsiderable.

United States.—Gold, 1,010,939 fine ounces, or 31,444 kilograms; silver, 15,971,286 fine ounces, or 496,763 kilograms, only new material being taken into consideration in the case of each metal.

The figures for the United States are known to be very near the truth, and while it is admitted that the returns from the other countries are far from accurate, it is believed that they are sufficiently so to warrant making an estimate of the world's industrial consumption of the precious metals.

This Bureau estimates the industrial consumption of the precious metals by those countries which made no report for 1903 as follows: Gold, 36,775 fine kilograms; silver, 458,818 fine kilograms. The total consumption of the world is accordingly estimated to have been: Gold, 114,882 fine kilograms, of the value of \$76,350,600, and silver, 1,553,204 kilograms, worth, at \$17.43 per kilogram (commercial value), the average price during 1903, \$27,072,346.

WORLD'S PRODUCTION OF THE PRECIOUS METALS IN 1903.

GOLD.

During the calendar year 1903 the world produced 15,747,378 fine ounces of gold, of the value of \$325,527,200, thus exceeding the output of 1902 by 1,426,018 fine ounces, or \$29,478,400, a gain of nearly 10 per cent. The increase in Africa amounted to 1,401,636 fine ounces, and that in Australasia to 369,164 fine ounces. The decrease in production in the United States was 310,000 ounces.

The output of the United States in 1903 was 3,560,000 fine ounces, thus being second in magnitude, Australasia being first with 4,315,538 fine ounces and Africa third with 3,289,409 fine ounces; Russia followed with 1,191,582 ounces. The remaining large producers, ranged according to their yields, were: Canada, 911,118; British India, 552,873; Mexico, 516,524, and China, 354,334. These eight countries together produced 14,691,378 ounces, or 93+ per cent of the world's gold yield in 1903.

Separated according to political divisions, the British Empire leads, it having produced 9,207,522 fine ounces, or nearly three-fifths of the total, while the United States was second, it having yielded about 22 per cent of the whole.

The following table shows the amount of gold produced by each of the great continents:

	Fine ounces.
North and Central America	5, 078, 358
Australia	4, 315, 538
Africa	3, 289, 409
Europe	1, 311, 820
Asia	1, 230, 373
South America	521, 880
Total	15, 747, 378

SILVER.

In 1903 the world produced 170,443,670 fine ounces of silver, of the commercial value, at 54 cents per ounce, of \$92,039,600, an increase over the yield of 1902 of 9,109,331 fine ounces, or \$6,532,400 in value, partly due to the increase in average price of 1 cent per ounce.

Mexico held its place as the greatest producer of silver, her output amounting to 70,499,942 fine ounces. The United States followed with 54,300,000 ounces. The remaining large producers were: Australasia, 9,682,856 ounces; Bolivia, 8,969,596 ounces; Germany, 5,822,452 ounces; and Spain, 4,090,876 fine ounces. These six countries together produced 153,365,722 fine ounces, or nearly 90 per cent of the total yield of the world.

The geographical origin of the product, by continents, was as follows:

	Fine ounces.
North and Central America	130, 065, 596
Europe	15, 151, 864
South America	14, 535, 016
Australia	9, 682, 856
Asia	665, 124
Africa	343, 214
Total	170, 443, 670

The commercial values of the world's production of gold and silver in 1903, geographically distributed, is exhibited in the following table:

Country.	Gold.	Silver.	Total.
North and Central America	\$104,979,000	\$70,235,500	\$175,214,500
Australia	89,210,100	5,228,700	94,438,800
Africa	67,998,100	185,300	68,183,400
Europe	27,117,800	8,182,100	35,299,900
Asia	25,434,000	359,100	25,793,100
South America	10,788,200	7,848,900	18,637,100
Total	325,527,200	92,039,600	417,566,800

The total commercial value of the product of 1903 exceeded that of the yield of 1902 by \$35,510,800.

INCREASE AND DECREASE DURING 1903 AS COMPARED WITH 1902.

Country.	Gold.		Silver.	
	Increase in 1903.	Decrease in 1903.	Increase in 1903.	Decrease in 1903.
	<i>Fine ounces.</i>	<i>Fine ounces.</i>	<i>Fine ounces.</i>	<i>Fine ounces.</i>
United States		310,000		1,200,000
Mexico	25,368		10,323,338	
Canada		121,043		1,073,713
Africa	1,401,636		343,214	
Australasia	369,164		1,656,819	
Russia	101,529			6,844
Austria-Hungary	3,572			257,084
Germany	339		99,811	
Norway	32			8,485
Sweden		1,383		12,109
Italy	1,034			158,004
Spain		232	390,687	
Portugal				3,773
Turkey		481		21,736
Finland	33		939	
Argentina			54,872	
Bolivia				
Chile			860,055	
Colombia	9,764			647,805
Ecuador	3,597			7,736
Brazil	8,432			
Venezuela		16,898		1,887
Guiana (British)		9,543		
Guiana (Dutch)	2,606			
Guiana (French)		15,419		
Peru		83,856		2,517,854
Uruguay		305		755
Central America		6,126	1,144,743	
Japan	34,622		151,861	
China		68,067		
Korea		24,188		
British India	89,049			
East Indies (British)	7,213			
East Indies (Dutch)	1,331		777	
Total	2,059,371	657,541	15,027,116	5,917,785
Net increase	1,401,830		9,109,331	

The following table shows, by calendar years, the production and value of gold and silver in the world since 1860:

PRODUCT OF GOLD AND SILVER IN THE WORLD SINCE 1860.

[The annual production of 1860 to 1872 is obtained from 5-year period estimates, compiled by Dr. Adolph Soetbeer. Since 1872 the estimates are those of the Bureau of the Mint.]

Calendar year.	Gold.		Silver.		
	Fine ounces.	Value.	Fine ounces.	Commercial value.	Coining value.
1860.....	6,486,262	\$134,083,000	29,095,428	\$39,337,000	\$37,618,000
1861.....	5,949,582	122,989,000	35,401,972	46,191,000	45,772,000
1862.....	5,949,582	122,989,000	35,401,972	47,651,000	45,772,000
1863.....	5,949,582	122,989,000	35,401,972	47,616,000	45,772,000
1864.....	5,949,582	122,989,000	35,401,972	47,616,000	45,772,000
1865.....	5,949,582	122,989,000	35,401,972	47,368,000	45,772,000
1866.....	6,270,086	129,614,000	43,051,583	57,646,000	55,663,000
1867.....	6,270,086	129,614,000	43,051,583	57,173,000	55,663,000
1868.....	6,270,086	129,614,000	43,051,583	57,086,000	55,663,000
1869.....	6,270,086	129,614,000	43,051,583	57,043,000	55,663,000
1870.....	6,270,086	129,614,000	43,051,583	57,173,000	55,663,000
1871.....	5,591,014	115,577,000	63,317,014	83,958,000	81,864,000
1872.....	5,591,014	115,577,000	63,317,014	83,705,000	81,864,000
Total	78,766,630	1,628,252,000	547,997,231	729,563,000	708,521,000
1873.....	4,653,675	96,200,000	63,267,187	82,120,800	81,800,000
1874.....	4,390,031	90,750,000	55,300,781	70,674,400	71,500,000
1875.....	4,716,563	97,500,000	62,261,719	77,578,100	80,500,000
1876.....	5,016,488	103,700,000	67,753,125	78,322,600	87,600,000
1877.....	5,512,196	113,947,200	62,679,916	75,278,600	81,040,700
1878.....	5,761,114	119,092,800	73,385,451	84,540,000	94,882,200
1879.....	5,262,174	108,778,800	74,383,495	83,532,700	96,172,600
1880.....	5,148,880	106,436,800	74,795,273	85,640,600	96,705,000
1881.....	4,983,742	103,023,100	79,020,872	89,925,700	102,168,400
1882.....	4,934,086	101,996,600	86,472,091	98,232,300	111,802,300
1883.....	4,614,588	95,392,000	89,175,023	98,984,300	115,297,000
1884.....	4,921,169	101,729,600	81,567,801	90,785,000	105,461,400
1885.....	5,245,572	108,435,600	91,609,959	97,518,800	118,445,200
1886.....	5,135,679	106,163,900	93,297,290	92,793,500	120,626,800
1887.....	5,116,861	105,774,900	96,123,586	94,031,000	124,281,000
1888.....	5,330,775	110,196,900	108,827,606	102,185,900	140,706,400
1889.....	5,973,790	123,489,200	120,213,611	112,414,100	155,427,700
1890.....	5,749,306	118,848,700	126,095,062	131,937,000	163,032,000
1891.....	6,320,194	130,650,000	137,170,919	135,500,200	177,352,300
1892.....	7,094,266	146,651,500	153,151,762	133,404,400	198,014,400
1893.....	7,618,811	157,494,800	165,472,621	129,119,900	213,944,400
1894.....	8,764,362	181,175,600	164,610,394	104,493,000	212,829,600
1895.....	9,615,190	198,763,600	167,500,960	109,545,600	216,566,900
1896.....	9,783,914	202,251,600	157,061,370	105,859,300	203,069,200
1897.....	11,420,068	236,073,700	160,421,082	96,252,700	207,413,000
1898.....	13,877,806	286,879,700	169,055,253	99,742,600	218,576,800
1899.....	14,837,775	306,724,100	168,337,453	101,002,600	217,648,200
1900.....	12,315,135	254,576,300	173,591,364	107,626,400	224,441,200
1901.....	12,625,527	260,992,900	173,011,283	103,805,700	223,691,300
1902.....	14,321,360	296,048,800	161,334,339	85,507,200	208,594,000
1903.....	15,747,378	325,527,200	170,443,670	92,029,600	220,371,600
Total	236,808,475	4,895,265,900	3,627,392,318	3,050,394,600	4,689,961,600
Grand total.....	315,575,105	6,523,517,900	4,175,389,549	3,779,957,600	5,398,482,600

WORLD'S COINAGE, 1901, 1902, AND 1903.

In the Appendix will be found a table, revised from the latest information received, exhibiting the coinages of the various countries of the world during the calendar years 1901, 1902, and 1903.

COINAGE OF NATIONS.

Calendar year.	Gold.	Silver.
1901.....	\$248,093,787	\$138,911,891
1902.....	220,405,125	193,715,362
1903.....	240,496,274	203,367,849

While the above figures represent, as accurately as the Bureau has been able to ascertain, the total value of the gold and silver coinage of the world during the calendar years 1901, 1902, and 1903, they do not accurately represent the value of the coinage from new material alone, but include the value of the recoinage of foreign and domestic coins and that derived from old material, plate, jewelry, etc., melted and used in coinage. Many foreign governments in their reports to the Bureau failed to separate the values of the coinage derived from these various sources.

The following table exhibits, by calendar years, the fine ounces and value of the gold and silver coinage of the world since 1873:

COINAGE OF GOLD AND SILVER BY THE MINTS OF THE WORLD FOR THE CALENDAR YEARS SINCE 1873.

Calendar year.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
1873	12,462,890	\$257,630,802	101,741,421	\$131,544,464
1874	6,568,279	135,778,387	79,610,875	102,931,232
1875	9,480,892	195,987,428	92,747,118	119,915,467
1876	10,309,645	213,119,278	97,899,525	126,577,164
1877	9,753,196	201,616,466	88,449,796	114,359,332
1878	9,113,202	188,386,611	124,671,870	161,191,913
1879	4,390,167	90,752,811	81,124,555	104,888,313
1880	7,242,951	149,725,081	65,442,074	84,611,974
1881	7,111,864	147,015,275	83,539,051	108,010,086
1882	4,822,851	99,697,170	85,685,996	110,785,934
1883	5,071,882	104,845,114	84,541,904	109,306,705
1884	4,810,061	99,432,795	74,120,127	95,832,084
1885	4,632,273	95,757,582	98,044,475	126,764,574
1886	4,578,310	94,642,070	96,566,844	124,854,101
1887	6,046,510	124,992,465	126,388,502	163,411,397
1888	6,522,346	134,828,855	104,354,000	134,922,344
1889	8,170,611	168,901,519	107,788,256	139,362,595
1890	7,219,725	149,244,965	117,789,228	152,293,144
1891	5,782,463	119,534,122	106,962,049	138,294,367
1892	8,343,387	172,473,124	120,282,947	155,517,347
1893	11,243,342	232,420,517	106,697,783	137,952,690
1894	11,025,680	227,921,032	87,472,523	113,095,788
1895	11,178,855	231,087,438	98,128,832	126,873,642
1896	9,476,639	195,899,517	123,394,239	159,540,027
1897	21,174,850	437,722,992	129,775,082	167,790,006
1898	19,131,244	395,477,905	115,461,020	149,282,936
1899	22,548,101	466,110,614	128,566,167	166,226,964
1900	17,170,053	354,936,497	143,362,948	185,358,156
1901	12,001,537	248,093,787	107,439,666	138,911,891
1902	10,662,098	220,405,125	149,826,725	193,715,362
1903	11,634,007	240,496,274	161,159,508	208,367,849
Total.....	299,679,911	6,194,933,618	3,289,035,106	4,252,489,848

PART II.

REPORTS OF THE SPECIAL AGENTS OF THE BUREAU OF THE MINT
ON THE PRODUCTION OF THE PRECIOUS METALS IN 1903
IN THE SEVERAL STATES AND TERRITORIES.

ALASKA.

By CHARLES G. YALE.

The following table shows the gold and silver product of Alaska for the calendar year 1903:

BULLION OF ALASKAN PRODUCTION RECEIVED AT THE UNITED STATES MINTS AND ASSAY OFFICES AND PRIVATE REFINERIES AND SMELTERS DURING THE CALENDAR YEAR 1903.

Metal.	Standard ounces.	Value.
Gold.....	466, 745. 411	\$8, 683, 564. 99
Silver.....	200, 178. 74	a 232, 927. 97
Total.....	.....	8, 916, 492. 96

a Coining value.

This shows an increase of combined gold and silver of \$517,512.37 over the year 1902, in which period the yield was \$8,398,980.59.

The gold alone in 1903 was \$8,683,564.99, and in 1902 it was \$8,283,408.75, so an increase is shown of \$400,156.24 in that metal.

The silver in 1903 was \$232,927.97, and in 1902 it was \$115,571.84, so the increase in silver, coining value, is \$117,356.13. The commercial value of the silver for 1903 at \$0.5357 per ounce was \$112,301.55.

From the Nome region was derived the sum of \$4,437,449.47 in gold and \$28,167.97 in silver, a total of \$4,465,617.44. As Nome produced \$4,561,869 in 1902, this shows a reduced yield for that region of \$96,252 for the year.

Excluding Nome, it is found that the rest of Alaska made a yield in 1903 of \$4,246,115.52 gold and \$204,760 in silver, a total of \$4,450,-875.52. As in 1902, the rest of Alaska produced \$3,837,110, the increase is \$613,765.52 for the year, but, deducting the decrease at Nome, the total increase is \$517,512. This shows that the increased yield of the year did not come from the Nome region, but from the quartz mines of southeastern Alaska and the camps along the Yukon River.

Returns received from the quartz mines show that 1,227,409 tons of ore were crushed, which yielded in 1903 the sum of \$2,725,823. The quartz mines yielded in 1902 the sum of \$2,577,883, so that the figures of 1903 show that they increased their yield \$147,940.

This makes a total yield of the Nome placers and the quartz mines of southeastern Alaska \$7,191,440.44, leaving the balance of \$1,728,-052.52 to come from the other mining camps of the district. As the other camps, excluding the quartz, produced \$1,259,228 in 1902, the increase from these camps for the year 1903 is shown to be \$465,824.

The following table shows increases and decreases of the different fields:

Increase in quartz product	\$147, 940
Increase in balance of Alaska	465, 824
Total	613, 764
Decrease at Nome	96, 252
Total increase.....	517, 512

Thus, while the quartz mines are increasing their product, they are not doing so as rapidly as the other camps of Alaska, outside of Nome, which show nearly half a million more yield than they did in 1902.

The grade of quartz worked in southeastern Alaska is, as is well known, quite low, but the milling plants are extensive in character, and the ore is both mined and milled at remarkably low cost, admitting of the mines being very profitable notwithstanding the grade of the ore. Several new mills are being erected in southeastern Alaska, and the quartz mining interests are rapidly increasing in importance. Many large deposits of quartz are being developed outside those on Douglas Island, though at that place are the most extensively developed properties and the largest reduction plants. It takes considerable capital to put Alaskan quartz mines on a profitable basis, owing to the fact that such large milling plants are required. Very large quantities of ore must be handled to insure profit on the wide ledges of ore, and small mills are of little use except for conducting practical tests of the probable working values. It is mainly for this reason that the quartz interests have not been more rapidly developed, as only companies with plenty of capital to invest can hope to succeed. To poor men the quartz properties are of little value as far as developing them is concerned. A small 10-stamp mill has been erected during 1903 on the Seward peninsula, on the "Big Hurrah" property, in the Salmon River region. The ore at this place is of higher grade than in southeastern Alaska.

Aside from the Nome region and southeastern Alaska, it is impossible to give details of annual output of districts or camps in Alaska. The receipts of United States mints and assay offices and private smelters and refineries are so segregated as to make it practicable to ascertain results in the two sections named; but there is no way of ascertaining even approximately what amount of gold comes from other separate districts. After the active placer work is finished in the summer numbers of the miners leave for "the outside," returning only the next season. Obtaining direct returns by mail is out of the question under the circumstances. The total gold is readily enough accounted for, but it is impossible to ascertain what each camp produced for the year.

The gold from the Golofnin Bay region, where the famous Ophir and other creeks are located, is included in the figures from Nome, the two districts being only 60 miles apart, and the shipments all being made from Nome. Ophir Creek is a very long one and there are many claims being profitably worked. It is the most extensive creek yet found on the Seward Peninsula. Reservoirs and a big ditch have been built to furnish water supply to certain rich claims on the creek, and the yield of gold has been very satisfactory. Some of the ground has been found to be exceptionally rich, notably in the claims near Nos. 15, 16, and 17, above described. The bench claims on the sides of the creek have also been found to be valuable.

In the Nome district no new discoveries of note have been made in 1903. The beach claims are still worked to more extent, but the main wealth lies in the various creeks. The claims are being steadily worked and, litigation having ended, there is no longer disturbances of titles to claims.

Gold-bearing beach sands have been found near Icy Cape, 7° farther north than Nome, but little work was possible in 1903, after the date of discovery. The find, however, is supposed to prove that the gold-bearing belt extends from Nome clear across the peninsula to the Arctic Ocean. A new placer field was also found on the Lowe River, 25 miles from Valdez.

The Tanana River diggings are being developed and many claims have been located. There are in this region many large deposits of gold-bearing gravel yet untouched. The gravel thus far worked is by no means as rich as was found in the Nome and Klondike creeks. Some good strikes, however, have been made and large numbers of prospectors searched the district during 1903.

Work continues at Circle city and vicinity, but the districts thereabout are not so fully populated as in previous years. Manook, or Rampart district, farther down the Yukon River, gives employment to a number of miners, but nothing unusual was reported from that section in 1903. The Koyukuk River districts have thus far proved rather disappointing, no strikes of moment having occurred, though some gold is being taken out. On the Sushitna River, 65 miles from Slate Creek, shallow placers have been discovered and are being worked. In the Porcupine district some gold is being taken out, both in Porcupine and McKinley. There has been a lack of labor in that section, numbers of the miners having gone to new diggings, 160 miles to the northwest. At Nugget Creek, 10 miles from Porcupine, only one company is conducting active operations. The Copper River region is producing some gold, but not very much. The Christochine gold field has several producing creeks. At Cook Inlet, the scene of quite an excitement a few years ago, no new placers have been found, but the old ones are being worked. Glen Creek, a tributary of Baker Creek, which enters the Yukon from the north, is turning out some gold. The camp is about 30 miles south of Rampart, on the Yukon River. On Birch Creek, one of the older camps, more or less placer work continues to be done.

Galena ore has been discovered in southern Alaska on Portland Canal and the ore carries both gold and silver.

Many discoveries of petroleum have been made of late along the Alaskan coast, but the output thus far has not been very great. Numbers of wells are being bored and tankage facilities constructed.

While it can not be said that any gold discoveries of a striking nature have been made in Alaska during 1903, yet the fact remains that the work of the numerous prospectors is proving a gradually increasing area of the known fields. New finds have been made of wide distances from each other, and it is proper to expect additional discoveries at intervening points. The extent of the country is so vast and the means of transportation, except on the rivers, so poor, that there remain numerous tracts yet unexamined. The prospecting areas have been mainly confined to the coast line and the courses of the rivers. Naturally, some inland prospecting has been done, but it has been very

little as yet. There are practically no settlements aside from the established camps and men are not apt generally to go very far from a base of supplies. On the Seward Peninsula, in a region to the north, summer travel is very difficult owing to the boggy nature of the tundra at that season, and in the winter the cold is extreme. It will be many years before that section of Alaska may be considered thoroughly prospected.

The work now going on in Alaska is on a much better basis than has been the case in former years. The gold excitement has run the natural course of such things and the miners have settled down to business. The speculative features are rapidly disappearing and the operations are mainly in the direction of legitimate development of the claims. The population is now more largely one of producers than it was in the first few years. The speculators and idlers no longer swarm in droves to Nome and other central points. The men who now go north each spring are those who go to work the claims. All this is much better for the advancement and development of the country than were the conditions formerly prevailing. There is plenty of room for miners and plenty of room for prospectors, for there is much ground available and plenty of work for those who seek it. While the figures previously cited do not prove a very rapid advance in production, they show, nevertheless, improvement in the conditions of mining, inasmuch as the increase in output of gold is gradual. As some claims are worked out other productive ones are found to take their places.

The following table shows the gold and silver yield of Alaska during 1903:

BULLION OF ALASKAN PRODUCTION RECEIVED AT UNITED STATES MINTS AND ASSAY OFFICES AND PRIVATE REFINERIES AND SMELTERS DURING THE CALENDAR YEAR 1903.

Source.	Gold.	Value.	Silver.	Commercial value.
	<i>Standard ounces.</i>		<i>Standard ounces.</i>	
Nome	238,514.847	\$4,437,449.47	24,207.61	\$13,580.62
Balance of Alaska	228,230.564	4,246,115.52	175,971.13	98,720.93
Total	466,745.411	8,683,564.99	200,178.74	112,301.55

In connection with this northern region the following table is given, showing the gold of the Klondike gold field in 1903:

BULLION OF NORTHWEST TERRITORY PRODUCTION RECEIVED AT UNITED STATES MINTS AND ASSAY OFFICES AND PRIVATE REFINERIES AND SMELTERS DURING THE CALENDAR YEAR 1903.

Metals.	Standard ounces.	Coining value.	Commercial value.
Gold	656,635.933	\$12,216,383.21	.....
Silver	317,220.740	369,118.05	\$152,941.63

ARIZONA.

By CHARLES C. RANDOLPH,

Phoenix, Ariz.

The output of the precious metals in Arizona in 1903 was gratifying in view of the tremendous obstacles which for a time threatened to place the Territory far down on the list of mineral-producing regions. There were labor troubles in nearly every camp of importance, and they extended to many small producers, so that for a time it appeared as if the unfortunate experience of Colorado would be shared by us, but firm action by the Territorial government and prominent mine owners served to put an end to the lawlessness which had begun; the places of the striking miners were filled, and production was resumed after a cessation of about four months.

The gold and silver product of the Territory for the year, according to statements supplied by mine operators, was, in round numbers, as follows:

Gold	\$4,576,000
Silver (commercial value)	1,848,000

These figures are considerably in excess of those of 1902, and they show conclusively that the mining interests of the Territory are in a healthy condition. Fully 150,000,000 pounds of copper was mined, and the product of lead was greater than in 1902. Surely a region that produces more than \$23,000,000 in a single year, despite adverse conditions, must be considered a potent factor in the mining world.

As a matter of fact Arizona's mineral resources are just beginning to be appreciated. There are many districts known to contain great riches that have not been developed owing to the lack of transportation facilities. Railroads are now being constructed and the result will be apparent in a few years in a vastly increased output of gold, silver, copper, and lead.

A mine must be rich indeed which can stand the steady drain on its resources imposed by a long wagon haul to a railway station. The old Vulture, which produced more than \$16,000,000 prior to the advent of the railroad, and the famous Tombstone mines, which added thirty millions or more to the wealth of the world years before the railroad crossed the Arizona deserts, were notable exceptions to this rule. The Vulture, which took on a new lease of life a few years ago, is now shut down and may remain so indefinitely, although there is little doubt that with good management it would again become a heavy producer. The Tombstone mines have been reopened since my last report was prepared, and are now attracting much attention. A railroad connecting the camp with the outside world has been in operation about a year.

It will be recalled that the Tombstone mines were abandoned for about seventeen years, and that the problem of unwatering them was considered by many to be impossible of solution. However, it was found that the difficulties had been exaggerated. Up to January 1, 1904, more than 675,000,000 gallons of water had been raised to the surface by the monster pumps, the time being something less than one year. The company has demonstrated that the subterranean reservoir, which some contended was fed by an underground stream, can be emptied and kept empty. The main shaft is now about 100 feet below the old workings of both the Grand Central and the Contention, in whose shafts an uncontrollable body of water was largely responsible for the abandonment of the camp in the eighties. Several of the noted mines in this remarkable group, such as the Lucky Cuss, the West Side, the Emerald, the Comet, the Tranquillity, and the Silver Thread are being put in condition for active operations, and there is no doubt that by the time of the next report on Arizona they will be heavy producers. Some very rich ore has been found during the preliminary work.

From all parts of the mineral belt come reports of increased activity on the part of mining men. This is especially true of the region traversed by the railroad now in course of construction between Phoenix and Benson, which will be completed at an early date. Its arrival in Pinal County is creating a demand for mining claims, and those who have been holding dozens of claims by simply relocating them every ninety days will soon find their occupation gone. From this time on locators will be obliged to do their location and assessment work if they desire to hold their claims. The hills are full of prospectors, and it will be strange if some of the seekers after wealth do not hit upon desirable claims.

Coke began arriving at Jerome early in the year and the camp immediately began to take on its old-time activity. The output of the famous United Verde is now the greatest in its history, the actual amount of ore that can be treated daily exceeding 1,300 tons. With the improved automatic machinery installed last year the force required at the plant is less than was formerly employed when the output was smaller. When the mine is run at the maximum fully 1,500 men will be on the pay roll. Jerome will be a lively camp in the coming year.

The product of gold in 1903 would have been much larger but for the fact that at the Commonwealth mine, a noted gold producer at Pearce, there was a disastrous cave-in, necessitating the abandonment of some of the workings, and that at the Fortuna mine, in Yuma county, the point of continuation has not yet been struck on the ledge that faulted some time ago. Both mines are very rich, and it is believed that the trouble at each will soon be overcome.

Attention has been directed in these reports to the fact that gold in paying quantities is found in most of the big copper mines throughout the Territory. The gold in the United Verde, as frequently stated, is believed to pay in great measure the expenses of production.

The reports from the Copper Queen, the Detroit Copper Company, and similar properties show that the gold and silver mined with the copper is of great value. In the Bisbee district the product of gold is steadily increasing. There has been extraordinary activity in this district, and the figures covering the output for 1904 are certain to be large.

The growth of the town of Douglas, in the southeastern corner of the Territory, is an index to the marvelous development of mining in Arizona. This is the newest of Arizona towns. It is named in honor of Prof. James Douglas, the scientist and head of the Copper Queen and other mines of the Phelps-Dodge group. The old smelter of the Queen at Bisbee was right on top of the mine and in a narrow gorge. A new site was chosen about two years ago 26 miles southeast of the mine and within a half mile of the Mexican border. Here a new smelter is about ready to be blown in. It has a daily capacity of 1,500 tons of raw ore, which is 50 per cent in excess of the rating of the old works at Bisbee.

The Phelps-Dodge people have copper mines in both Cochise and Graham counties, and another big property, the Montezuma Copper Company, at Nacosari, Sonora. The same firm controls the El Paso and Southwestern Railroad, running from El Paso along the extreme southern edge of New Mexico into the southeastern corner of Arizona, finally connecting with the Southern Pacific at Benson, Ariz., and also having a connection with the Sonora Railroad running from Fairbank, Ariz., to Guaymas, on the Gulf of California. In addition there is another Phelps-Dodge road running south into Sonora from Douglas, and this is eventually to reach the Nacosari mines of the Montezuma Company. The location of the new Queen smelter at Douglas is taken as an effort on the part of Phelps, Dodge & Co. to secure a central smelting point, almost equally accessible to the Copper Queen, Detroit, and other big producers, and if this be the object Douglas was well chosen.

In addition to the three big producing mines they have so long controlled, Phelps, Dodge & Co. have properties at Globe, and are developing a big mine in the neighborhood of the Greene Consolidated properties in Mexico. The residents of Douglas are confident that the new town will soon be a rival of El Paso as a smelting point. The Queen tonnage alone is a big item, and the Calumet and Arizona also has a monster smelter here. This is now turning out 3,000,000 pounds of copper monthly, and the capacity is soon to be increased 50 per cent by the blowing in of another furnace.

The Calumet and Arizona has by no means reached the possibility of production with a single shaft, in turning out 50 tons of refined copper every day in the year, and is sinking a second shaft in very promising ground. In addition there are the four "Calumet babies," as the mines recently organized by Michigan capitalists are known, which are likely to be making copper in the next two years. In view of the presence of gold in large quantities in the copper mines of the district, the relation of these monster operations to coming mint returns is obvious.

Yavapai County maintained its reputation as the banner gold-producing county of Arizona in the year just closed. The Congress mine, operated by the Congress Gold Company, improved on its record of 1902. The Poland mill was only run two or three months, since which time the operating company has confined its work entirely to the monster tunnel connecting the Big Bug and the Lynx Creek districts. It was deemed the best policy to put this tunnel through and make the other veins of the Poland mine accessible and secure good ventilation before resuming milling. The tunnel at this writing only lacks 1,200 feet of completion. It should be completed by June, 1904.

The heretofore almost inaccessible Bradshaw mountain region is being opened up by a railroad, and operations there will be active during the year. Miners in the Lynx Creek region are anticipating the construction of many narrow gauge roads that will connect with the Poland tunnel and through it with the Santa Fe system. A railroad is being surveyed through the Harqua-Halas, with a strong probability that construction will begin before the year is much older. From every standpoint the mining outlook for Arizona is exceedingly bright.

COCHISE COUNTY.

The greatest development in this county has taken place in the Warren mining district, in which is situated the big copper camp of Bisbee. The Copper Queen, in this camp, has been running steadily throughout the year at its full capacity. The smelter of this company produced 30,000,000 pounds of copper during the year and was not able to handle all the ore that the mine could produce. A smelter of increased capacity is being built at the new smelter town of Douglas, on the Mexican border, and will be completed early in 1904. This will do away with troubles due to lack of room at the present reduction plant, and will allow of a large increase in the future output. There are at least 150 miles of tunneling in the Copper Queen mines and the ore deposit is sufficient for extensive operations for many years. The Nacosari properties of this company, near the new smelter, have been extensively developed during the year, and will be important in the producing class when the new smelter is blown in.

The Calumet and Arizona, in the Bisbee district, has made a great record for a new mine. In three years these claims have been developed from mere prospects to big mines, which produced over 25,000,000 pounds of copper during the past year, and will increase that by one-half this year. The company has been paying dividends steadily in the last twelve months. It has a magnificent reduction plant in Douglas. The smelter has a daily capacity of 350 tons, and new furnaces are being installed.

The Lake Superior and Pittsburg, next to the Calumet and Arizona, struck the main ore body last December, and preparations are making for the erection of a smelter. The developments of these holdings promise 20,000,000 pounds of bullion in 1904. There are three other companies near the Lake Superior and Pittsburg which were just a little behind it in their exploration last December and which are all in ground of the best indications at the 900-foot levels. They are the Calumet and Pittsburg, Pittsburg and Duluth, and the Junction.

Too much can not be said of the exceptional outlook for this district. It is now assured that the Warren district will furnish more copper than any other district in Arizona. All the ores carry good values in gold and silver. It is claimed that the values in precious metals pay the cost of production.

The 100-ton custom smelter of the Empire Smelting Company was run steadily in the latter half of 1903, and the results were so satisfactory that the company placed an order for additional furnaces so as to make the capacity of the plant 300 tons for a day of twenty-four hours. This enterprise has enabled many small mines in the county to operate which formerly were barred by the high freight rates. This is the first custom smelter in the county, and the management affirms that a

steady run is assured for it. Copper ores and concentrates from gold and silver ores are mostly handled, and many small concentrating plants are being contracted for throughout the county.

The eighty stamps of the Commonwealth mine at Pearce, dropping on ore, turned out a big product of gold and silver during the year. This is one of the steadiest producers in the Territory, and has been in operation for years. The stamp mill is new, erected after the fire a short time ago, which wiped out the surface works and delayed operations for some time. This setback was overcome with but little inconvenience, as the ores of the mine are very rich. There was a serious cave-in in December and mining ceased for a time. New working shafts leading to the ore bodies are being sunk, and it is not believed that the output for the year will be much affected.

The operations at Tombstone during the year consisted in sinking the large central drainage shaft and in further development of the unexplored ground above water level, which latter work has resulted in opening a large number of new ore bodies, from which steady shipments have been made since the opening of the railroad last May. Six shafts are in operation, as follows: The main or drainage shaft on the Flora Morris claim, and the Tranquillity, Silver Thread, Comet Emerald, and Westside shafts, all of which, except the Emerald, are producing ore of shipping grade above the water level. In the Emerald shaft the old workings are so badly caved that no attempt will be made to reopen them, and the shaft is being sunk below water level, where all of the new work will be done. The old bottom or water level of this mine was run for a long distance on a vein of high-grade ore, which continued down into the water and on which the new levels will be run.

The main drainage shaft was sunk 170 feet below the old water level prior to January, 1904, the average daily flow of water being about 2,250,000 gallons, which is gradually becoming less as the drainage proceeds. The drainage so far effected appears to be permanent, as the ground even as far as several thousand feet from the shaft is perfectly dry, and upon cessation of pumping the water rises very slowly. New pumps have been installed 160 feet below the original ones, which were located just above the water level, and there is now a complete duplicate system which reduces the possibility of flooding to a minimum.

Sinking has been resumed and no trouble is anticipated in reaching the 1,000-foot level in the coming year. Crosscutting for the veins on the 700-foot level (160 feet below the lowest previous level), is now going on and no trouble whatever is found in handling the water encountered. As drainage proceeds winzes are sunk at various points. The continuance of the ore bodies below water has been amply demonstrated. All the geological conditions expected have come true. High-grade ore has already been found below the water level, and it only remains for the Tombstone Consolidated Mines Company to continue its plan of sinking the drainage shaft and opening the ground for regular mining work. This work is proceeding rapidly.

The Black Diamond is a copper property situated about 7 miles from Pearce. A 200-ton smelter has been running steadily on good ore for the last year. Some difficulty has been experienced in handling the water encountered in the lower workings of the mine, but it has been overcome by increasing the pumping plant. This is a comparatively new mine and it unquestionably has a great future.

Development work on the Copper Belle group of claims near Gleason has opened up what is pronounced a very rich property. Machinery for extensive deep work has been installed, and a reduction plant is running on ore of medium value. The plant consists of a 250-ton smelter of the latest pattern, which has proved very satisfactory.

The Casey mines at Dos Cabezas are rich gold properties that have yielded a steady stream of shipping ore for a year. A reduction plant is likely to be erected in the near future.

Many new and valuable strikes have lately been made in this county, as the district has received much attention from mining men. The Santa Rosa is a well-developed copper property in the southern part of the county, about 15 miles from Douglas. The attention of the managers of this mine has been given entirely to the opening up of the ore bodies, but no attempt at reduction has been made as yet. A vein of sulphides 16 feet wide has received considerable attention, and shafts and crosscuts have revealed such an extensive deposit that a plant of large capacity has been ordered for the treatment of the ores. This is considered a coming big mine, and a flattering offer for it has been declined by its owners.

Near this mine a big strike was made in December on a group of claims known as the "San Juan." The find was a ledge of quartz in which the gold values exceeded \$6,000 per ton. The ledge was well defined, with walls of quartzite and porphyry, and the values of assays taken from prospect tunnels across the ledge at different points held out exceedingly high.

COCONINO COUNTY.

Mining in this county is limited to the Grand Canyon region, where the Canyon Copper Company is operating. Its patented mining claim is 2,000 feet below the rim of the canyon on the Grand View trail. The formation is the limestone-porphry contact common in Arizona copper mines. During the year there was considerable development work done, and the ore taken out was shipped to the El Paso smelter. The ores are copper carbonates, oxides, and sulphides, and are high grade. The contact bearing the ore is fast being opened. The property has a unique location. The walls of the side canyon afford excellent tunnel sites so that no hoisting machinery is required. John H. Page, the general manager, expresses the opinion that the property is becoming very valuable.

Across the Colorado River from the mine is an asbestos deposit which has been worked extensively in the last year. The blanket vein of serpentine has been uncovered, and considerable asbestos has been shipped to New York, where it commands a ready market.

GILA COUNTY.

Most of the mining in this county is confined to the Globe district, and consists of copper, carrying good values in gold and silver. The two largest companies of the district are the Old Dominion and the United Globe. These have lately been merged into one, with another known as the Coronado Company, which will allow of more economical management. At the time of writing objection to the merger has been filed by some dissatisfied stockholders, but it is believed that the difficulty will soon be adjusted. The United Globe has been pay-

ing a premium on fluxing ores which the Old Dominion has in quantity, so, by a consolidation of interests, a great saving will be made.

The United Globe ores average 14 per cent copper, and are a good smelting sulphide variety. They have been shipped to Bisbee for smelting. From 1 to 15 ounces of silver is contained in the ore per ton. A recent cave-in in the working shaft gave the company a decided setback. The ruin was so general that a new shaft had to be sunk and timbered before work in the stopes could proceed. In sinking the new shaft water was encountered in great quantities, 250,000 gallons being raised daily by three sinking pumps and one station pump at the 700-foot level. Several miles of new development work has been done, and ore yielding nearly 20,000,000 pounds of copper per annum is being shipped to the smelter. The company is employing all men who apply for work, and pushing development to the utmost.

Improvements at the Old Dominion in the last year have cost in excess of \$300,000. A new converting plant has been installed and much development work has gone forward. The production of copper during the year was about 20,000,000 pounds. The output will be largely increased, as machinery for additions to the smelter and hoisting works has been ordered and will be set up as soon as received.

The cost of production of Bessemer copper laid down in New York has heretofore been 10½ cents a pound, but with the merger of interests and the increase of the plant, better results are expected. This district, as well as that of Clifton, Graham County, was badly crippled by the slump in copper a year ago. The market price fell below the cost of production in these camps, but the companies showed their faith and enterprise by not shutting down.

In this district there has been considerable activity in the opening up of low-grade copper properties, and there are several mines that ship gold and silver. The Black Warrior Copper Mine, of which much has been expected, closed down in July on account of a disagreement between members of the board of directors as to the policy of the company. The mine produced about 5,000 tons of ore during the year, which was run through the leaching plant, with a resultant of 38,246 pounds of fine copper in 20-pound ingots. An addition to the leaching plant has been built, and it is regarded as necessary to build a blast furnace in order to reduce the ores to black copper before putting them through the refining furnace. The two reverberatory furnaces can not handle the copper precipitates from the leaching plant. It is expected that the differences in the board of directors will be healed and that the plant will be completed and made a money maker in the near future.

GRAHAM COUNTY.

In this county is the Clifton-Morenci district, one of the best mineralized of the Territory, and from which there is a tremendous output of copper, with good values in gold and silver. Last year there was considerable trouble at the mines by reason of the passage of an eight-hour law by the legislature, followed by a strike of all the union miners. Three companies of the Territorial militia were called out to quell the subsequent riots, and a company of regulars also went from Fort Grant. The dispute between the companies and the union was finally settled without loss of life, and nonunion men are now

employed. The strike continued several weeks, and the operators lost much money, while the output was sensibly decreased.

The ores of this district are of very low grade, averaging about 4 per cent, and the district has gained an enviable fame as the result of its successful treatment of them. The largest property is that of the Arizona Copper Company, situated at Clifton. Its stock is owned in Scotland. The smelter plant at Clifton has six furnaces, and the five converters can turn out over 50 tons of Bessemer copper per day. In connection with this plant there is a leaching plant, with a daily capacity of 250 tons, and a sulphuric acid plant capable of handling 13 tons each day. This sulphuric acid is a by-product of the smelters and the acid is used in the operation of the leaching plant.

The Longfellow mines of the company, 4 miles from Clifton, have a 300-ton concentrating plant on the grounds, and the concentrates are carried by railroad to the Clifton smelters. Large veins of sulphide ores have been developed to a depth not exceeding 500 feet, and for a length of nearly 1,500 feet in the strike of the veins. The veins are continuous and frequently are 100 feet wide. The reserves in sight, above the 500-foot level, are sufficient to assure the company of many years of active existence.

The Detroit Copper Company, at Morenci, has the largest copper furnace now in operation, the two old furnaces having been replaced by a new one 42 by 264 inches at the tuyeres. In connection with the furnace plant is a briquetting machine for putting into briquets the fine ores from the mines, fine concentrates from the concentrator, and flue dust from the furnaces. Adjacent to the smelter is a line quarry from which the company obtains the necessary barren material for fluxing purposes. All of the plant is connected by railway. Three tunnels are being worked at present. Over the divide from the town is the main hoist of three that are in operation, called the West Yankee. From the various levels drifting has been done which connects the principal properties of the company underground, the ores being hoisted at the rate of 75 cars per hour.

The Shannon Copper Company is one of the important new companies of the Territory. It is operating on a group of claims near Clifton, the principal mine being a mile from Metcalf, well up in the range.

The main tunnel is 715 feet long, and it crosscuts the ore at a depth of 300 feet below the apex. A number of miles of work has been done on the group with very satisfactory results. The smelter has a daily capacity of 600 tons, and the concentrating plant handles 250 tons of ore every twenty-four hours. The last-named plant is being doubled, and the smelter also is being enlarged. The product of the company is black copper, but plans are now perfected for the installation of a Bessemerizing battery to handle the entire output.

In the Galiuro Mountains in this district is a group of claims on which the Consolidated Gold Mountain Mining Company has recently spent \$50,000 in development work. The company bonded the group two years ago for \$160,000, and this indebtedness has been paid. There is a well-defined quartz vein giving flattering values in gold. The mines are pronounced by experienced miners to be the best that have been opened in that region in the last ten years. An immense body of ore has been blocked out, and a reduction mill will be built as

soon as the new railroad is completed to that point. The San Pedro River furnishes an ample water supply.

Many new and promising properties have been worked in the last year. The advent of the railroad will bring some good low-grade propositions to the front.

MARICOPA COUNTY.

Considerable development work was done in Maricopa in 1903, but there were no shipments of ore. The Arizona Consolidated Mines Company, of Boston, has a good property near Hot Springs Junction. The ore is copper, with some gold and silver. Two shafts are being sunk, and it is expected that shipping will begin before the close of 1904. The Relief mine has succeeded in securing an ample supply of water at the 500-foot level. It has been determined that the ores respond readily to the cyanide treatment, and a 50-ton plant is to be erected.

The Nugget gold mines in the Vulture and San Domingo districts have been developed extensively, and it is believed that they will be shipping bullion during the coming year.

MOHAVE COUNTY.

There was much development of innumerable mineral-bearing veins in this county in 1903. The C. O. D. mine, which has a 60-ton concentrating plant and has produced over \$1,000,000 worth of gold and silver, is making extensive improvements. The Golden Gem, in the Cerbat district, a well-known gold property, is being equipped with a 50-ton concentrating plant to handle the lower-grade ores. The Oro Plata is producing a fine grade of concentrates. In the Mineral Park district the Queen Bee, Argo, and Metallic Accident are steady shippers. The turquoise mines of the Aztec Company are producing and shipping gems to New York.

At Chloride the Samoa and the Lucky Boy have produced throughout the year. The Steve Smith mine is producing high-grade gold ore. The old Sunlight, once a large producer, is being opened up, with fine prospects. The Gold Road Mining Company undoubtedly has outstripped all others in the county in the way of development and production in the last year. The 300-ton cyanide plant is running continuously and turning out bullion. The report of the company shows a most flattering condition of affairs. This is becoming one of the large gold producers of the Territory.

The Pilgrim mining district, which is comparatively new, is attracting much attention. It lies in the northern part of the Blue Ridge Mountains. It belongs to the great metamorphic and eruptive gold-bearing era that reaches from the big bend of the Colorado River on the north to Bill Williams Fork on the south. Within the last year several gold discoveries have been made. The most important is the Pilgrim mine, which recently was sold for \$250,000. It will be developed and much is expected of it.

PIMA COUNTY.

This county has seen more activity in mining the last year than ever before. The influx of capital has been strong, and many good prospects that had lain idle for years have been taken up at a profit.

A new company known as the Little Helvetia Copper Company has taken over the mines of the Helvetia Company in the Santa Rita mining district. The camp at Helvetia has an extensive equipment consisting of a large smelter plant and a railroad to the mines. The plant has been idle two years, owing to the slump in copper last year. The ores are low grade, but of immense proportions, and at the present prices will give good returns. The smelters will be overhauled by the new company, and ores from the old workings, as well as from the new holdings of the company in the same district, will be treated in the furnaces. As this district abounds in mines of proved value, it is proposed to do custom work at the smelter. If this is done it will enable many small properties now handicapped by a 35-mile haul to the Southern Pacific Railroad to become producers.

At the Old Glory, in the same district, a small smelter has been running on rich ores with good results. This property was purchased by the present company from Tucson parties when it was yet a prospect, and has been carefully developed. There is plenty of pay ore in sight, and it is believed the property will be a lasting one. The Banner mine in this vicinity has received much attention. A good ore body of high-grade copper has been uncovered. Considerable money has been expended on machinery for development work and in the exploration of new ground, and a reduction plant is to be erected. The Cuprite, a property adjacent, shows a substantial ledge of copper ore. The assays have given good values in both gold and silver.

In the Guifes there are several coming mines. The Old Liberty is shipping ore to the smelters. This mine gives high values in silver. Sufficient ore has been blocked out at this mine to justify the erection of a small smelter. Over 5,000 feet of development work has been done. The Joe Goldtree, a silver-lead mine adjoining Old Liberty, has encountered a chute of very high-grade shipping ore. Stead & Fryer operate a 24-ton steam stamp mill at their mine in this region.

The Old Baldy mines, embracing twenty claims, have been quite extensively developed. The Catalina Mining Company, owning a group of claims on the San Pedro River, has done over 2,000 feet of development work, mostly on the Silver Reef claim. A vein 15 feet wide, running high in copper sulphides, has been uncovered by a crosscut tunnel. Tunneling along the vein has revealed the fact that the ore body is continuous throughout the claim. The company is pushing development work, and the Phoenix and Eastern Railroad will be within 12 miles of the property inside of six months.

In the summer of 1903 the Development Company of America bought the Old Boot copper mine, which lies 26 miles south of Red Rock on the Southern Pacific Railroad. In the early days the mine was a large producer and the camp was a scene of great activity. It had been turning out a small amount of bullion in recent years, and many so-called experts declared that it had seen its best days. The new owners have discovered that they have one of the most valuable mines in all Arizona. Prospect work has revealed immense bodies of high-grade ore. Within a few months the mine will be given a railroad outlet and it will become a heavy producer. It was first proposed to build a large smelter, the two stacks already there being insufficient, but it is likely now that all the ore will be shipped to the new smelter at Douglas. The gold and silver values run exceedingly high. There is every prospect that the Imperial, the new name of the mine, will make

a great name for itself in the next few years. The price paid for it was \$500,000.

PINAL COUNTY.

There has been but little mining in this county in the last two years, owing to the scarcity of water, litigation, and high freight rates. The opening of the Phoenix and Eastern Railroad through the southern portion of the county marks a great revival in mining conditions. Many old companies are refitting their properties for operations, and new groups are coming into prominence. The Mammoth mine, famous in early days for the production of the precious metals, will be reopened as soon as the railroad is completed. This mine paid fabulous dividends years ago in spite of almost prohibitory freight rates. The ore values ran down in time, and this fact, coupled with expensive litigation, caused the cessation of all work. It is still a valuable holding, and now that a new company is in control and all litigation has been swept aside, it is likely to become a strong dividend payer.

The 60-ton smelter of the Troy Company, whose mines lie about 30 miles east of Mesa, was in operation a short time a few years ago and then closed down permanently on account of the expensive wagon haul. Many thousand dollars have been spent in the development of these mines, showing up an immense body of medium-grade copper ore, and good assays of silver have been obtained throughout. The equipment is excellent for a permanent camp, and the mines are in prime condition to become producers as soon as the transportation problem is settled. The new railroad runs within a short distance of the mine. In all probability the reduction plant will be enlarged to meet the new conditions.

At the Bobtail mines, in Mineral Creek district, a small mill has been operated on some high-grade gold ores with a high percentage of extraction. The operating company has spent considerable money in development, and has disclosed a valuable mine which will come to the front in the coming year.

The Ray mine in this district is the largest and most important, but has been idle several years, as it was found that the expense of the long wagon haul could not be overcome. At this mine there is a large concentrating plant, and the hoisting facilities are of the best. Work will soon be resumed, now that the railroad has arrived.

SANTA CRUZ COUNTY.

One of the oldest mines in Arizona is that known as the Mowry, in the Patagonia mountains, 14 miles south of the town of Patagonia. During the civil war these mines were confiscated by the Federal Government because the owner, Lieutenant Mowry, was employing the smelters to supply the Confederate army with lead. The vein is situated on the contact between Cambrian quartzite and Silurian lime, and carries high values in silver and lead, the latter being in the form of a carbonate. The ore chutes are several in number and cross the strike of the vein from west to east, showing great strength and continuity. This mine is now down to the water level at 340 feet, the main shaft having lately been lowered 100 feet more by the use of sinking pumps. Over 40,000 gallons are raised daily, and there is constant hoisting of high-grade ore. The plant consists of two hoist-

ing works and a 50-ton concentrating mill. New machinery has lately been ordered, and the company will prospect for new ore bodies.

Washington camp lies 5 miles to the south of the Mowry, and has been worked continuously for several years, with good results in the way of dividends. This is one of the important camps of the Territory, and is noted for the success that has been attained in treating base ores. Mining has been lively in that region for years, as Washington supplies many other plants with material for fluxing. The ores of the district are copper, iron, lead, and silver.

The World's Fair mine has shipped some high-grade silver ore the past year, and continues to uncover rich bodies that look good to the owner. This property is valued at \$1,000,000. In my report for 1901 I stated that the owner had refused \$500,000 for the mine, and that he worked it spasmodically, taking out money as he needed it. When he accumulates \$10,000, or \$20,000, he travels with his family until the money is exhausted. Then there is "something doing" at the mine.

The Pride of the West, in the Washington district, continues to be a large producer. It has complete reduction works, consisting of a roasting furnace, concentrating mill, and smelter. The mill is equipped with crushers, rolls, separators, and Wilfley tables. The product of the mine has been very even for years. The opening lately of ore bodies of great extent has necessitated an addition to the plant.

YAVAPAI COUNTY.

But for the labor difficulties in 1903, the mineral output in Yavapai County would easily have exceeded that of any previous year. In spite of the drawbacks due to the temporary closing down of many properties, the yield of the precious metals was nearly equal to that of 1902, and much money was spent in development work and in the acquisition of new holdings. With the labor problem practically determined there is every indication that the coming year will see a notable increase in the production of gold, silver, and copper.

It is noteworthy that the mining operations in the county were not confined to any one district. In all the districts there has been general exploration, and many promising claims are being worked. The United Verde, the Octave, Gray Eagle, Henrietta, Poland, Crowned King, Jessie, Wildflower, Home Run, Favorite, and many other mines are bringing wealth to their fortunate owners. No two of these are in one district. Miners of large experience declare that there is not a richer mining area in the world than is contained in this county.

The county records show that there were placed on the tax rolls during the year a total of 901 patented mines, on each of which there had been expended in development work at least \$500. Yavapai County has, as a result, more patented mines than the entire Territory possessed at the close of 1902. Fully 25 per cent more miners were employed than in the previous year. The output of gold, silver, copper, lead, and other minerals in the county during the year is estimated to exceed in value \$6,750,000. The yield of placer gold was approximately \$100,000. The placer industry is rapidly waning, owing to the scarcity of water. In previous reports I have described the different placer fields of the county. Were there an abundance of water, undoubtedly the placers would attract general attention. Placer min-

ing is confined to Mexicans and to a small class of Americans who are content with small returns.

The construction of the Poland tunnel continued during the year, and it is expected that the work will be completed within six months. This is one of the greatest undertakings in the history of mining in the West. Work on the tunnel was begun about three years ago by the Poland Mining Company. It will exceed 8,200 feet in length. The bore is 9 by 12 feet. The tunnel will be equipped with a double track railroad, and the cars will be operated by electricity. The tunnel will afford a means of profitable egress to the products of the rich Lynx Creek district, which have long labored under the disadvantage of excessive hauling rates. Many new mines will be opened and operated when the tunnel is completed. There is plenty of low-grade ore in the neighboring hills, which soon will be handled at a profit.

The tunnel connects with the Prescott and Eastern Railroad, a part of the Santa Fe system. A system of narrow-gauge road running to the different mines in the district will serve as feeders to the main line. The tunnel has a 1 per cent grade, with a down haul to the railroad. It is expected that the reduction plants will be established at the Big Bug end of the tunnel. In the digging of the tunnel an immense body of water has been encountered, and if this should prove to be permanent it will be of inestimable value in future operations, as there will be no difficulty in conserving it. Capital is entering the region as a direct result of the piercing of the mountain. The Poland Company has cut many fissure veins in the prosecution of the great work, at a depth of about 1,000 feet. It goes without saying that the company's mining operations will be conducted with a minimum of expense.

In the last year the Prescott and Eastern Railroad has been extended from Mayer, and will soon reach the Bradshaw Mountains, giving easy access to a magnificent mineral region. Although admittedly the richest mining section in the Territory, the Bradshaws have been neglected because of their inaccessibility. Ores carrying \$50 to the ton have been neglected because they could not profitably be shipped out over narrow trails. The railroad is a costly undertaking, but the prize in sight is worth more than the outlay. Much money is being invested in properties in the region tributary to the railroad.

The Santa Fe is surveying a line from Prescott westward with the design of connecting with the main line in California. If it is built a vast mineral region will be placed in touch with the outside world. The road cuts the zone along the Colorado River that is likely to be reclaimed by the United States Government. By the end of 1904 many mines to the eastward of Prescott will be operated by electricity generated on Fossil Creek. The proposed line is about 45 miles long. Contracts for over 6,000 horsepower already have been made by mine operators.

During the year seven quartz mills were placed on as many mines; eight quartz mills had their capacity increased. These mills have from 5 to 20 stamps each. Thirty-seven modern steam hoists were erected. The Treadwell Company completed its new hydrocarbon smelter of 100 tons daily capacity. The Old Boggs 50-ton smelter was repaired and operated. The Val Verde Company spent \$25,000 in improving its smelter. The Rigby Reduction and Refining Company completed a \$125,000 plant for the handling of ores by the volatilization process. The Crowned King Gold Mines Company installed a \$100,000 plant to

treat the tailings from its mines. The United Verde built new smelters, and now can handle about 1,300 tons daily. Much money has been spent in the different districts in remodeling plants that have been in operation many years. The cyanide method of treating ores has been extensively introduced. Fourteen such plants are now in operation, the capacities ranging from 20 to 250 tons.

At the close of 1903 there were in operation, or ready for service, in the county 45 stamp mills, with a total of 610 stamps. The Val Verde smelter has a capacity of 300 tons. The Crowned King is equipped with the Campbell system of concentration by magnetic separation, and can treat 100 tons daily. The Prescott agency of the El Paso plant of the American Smelting and Refining Company handles 50 tons daily. The different cyanide plants treat at least 500 tons daily. At least 4,000 tons of ore are put through the different processes each day in the county, independently of secondary treatment by the cyanide plants. This affords a good idea of the growth of the mining industry in Yavapai.

During the year the United Verde was in operation only about six months, as the result of strikes in the east (which interrupted the supply of coal and coke for smelting purposes), serious underground fires, and the installation of new machinery. The gross product of copper was about 30,000,000 pounds. The United Verde ores contain a large percentage of gold and silver.

The Congress mine continued in operation throughout the year and turned out an immense amount of gold. It operates 80 stamps, 4 steam hoisting plants, and a complete cyanide plant. It is justly regarded as one of the permanent mining institutions of the Southwest. The supply of ore is practically inexhaustible.

The Octave mine has been in operation several years. Its product of gold last year showed a flattering increase over 1902. The mine has reached a depth of 1,500 feet. The richest ore comes from between the 1,300 and 1,500 foot levels. The mine is well equipped with modern machinery.

Owing to the labor troubles the Penn Gold Mining Company operated only four months in the year. Work is now proceeding rapidly. A depth of 750 feet has been reached. The ores are sulphide, carrying zinc, lead, and iron, and the Huntington process of treatment is employed.

The Tiger Gold Company made good progress during the year. Its property is equipped with a 20-stamp mill, and all the machinery is of modern pattern. The output of gold is increasing rapidly.

The famous Crowned King mine, which has been idle three years as the result of litigation, was taken over by a new company in June. Since then the tunnel and main working shaft have been retimbered to the extent of 3,000 feet. Mining is now under good headway. The tailings that have accumulated are estimated to be worth \$250,000, and these are being treated by the new plant mentioned above. The gross yield of the mine is estimated to be worth \$2,000,000.

The Wildflower group was sold late in 1903 and is being rapidly developed. There are eight claims, all in a section supplied with wood and water.

Work was resumed on the Jessie mines, which had produced over \$800,000 in gold. The main shaft is down 675 feet. Modern machinery has been supplied.

The McCabe mine is again in operation, and will make a good record this year. The Braganza Company is operating 20 stamps. It proposes to drive a tunnel 2,800 feet, to explore at a depth of 600 feet a promising system of veins.

The Dividend mine is being equipped with a modern plant.

The Treadwell Company, in addition to building a 100-ton oil smelter and rehabilitating the Old Boggs smelter, has installed a 12-mile pipe line, and operated the Iron Queen, Boggs, Hackberry, Brookshire, and other claims. A narrow-gauge railroad is now in use between the mines and the smelter.

The Victor mine is turning out gold in satisfactory quantities. At the Iron King a 60-ton mill has been erected and operated, and seven new shafts have been sunk. Each is supplied with a steam hoist.

The Home Run mine was sold last August. The underground workings extend over 6,000 feet. About 21,000 tons of ore are blocked out.

The Ideal Company had a successful year, the yield of gold being heavy, considering the limited mechanical facilities.

The Yeager Canyon Company has gone down 850 feet with its main shaft, and there are drifts extending several thousand feet. A concentrating plant is being built. The outlook for this property is very favorable.

The litigation over the famous Hillside mines is at an end and the property is to be worked to its full capacity. The Hillside is said to have the longest ore chutes of any mine in the country.

The Bodie mine is in new hands and in process of development. At a depth of 400 feet the vein is from 3 to 5 feet wide and carries values in gold alone of \$60 to the ton. Lead predominates, but with depth the gold values increase.

In the latter part of the year the Rapid Transit mine passed into the hands of a syndicate and work is now under way. The yield meets the expectations of the new owners.

The Rainbow Company was incorporated during the year and it is opening some fine gold properties. A stamp mill is being put up.

Prescott is the natural distributing point for the mines in the county and it is enjoying a rapid growth. In the last year many handsome buildings have been erected. There is general confidence that the mining industry in the county will continue to expand.

YUMA COUNTY.

While there was considerable development of different properties in Yuma County, production was limited during the year to a few mines, the King of Arizona and La Fortuna heading the list.

The interesting story of the discovery and development of the King of Arizona gold mine has been told in an earlier report to the Director of the Mint. The company owns four claims and is 40 miles from the nearest railroad station. The equipment consists of a plant which crushes the ore, dries, and cyanides it. The extraction reaches about 91 per cent. About 5,000 tons of ore are treated each month. Thousands of feet of development work has been done and the mine is a heavy dividend payer, notwithstanding its distance from the railroad.

La Fortuna is situated about 23 miles southeast of Yuma at the foot of the western slope of the Gila range of mountains. It was discovered

in 1895 by three prospectors who were looking for placer gravel to be worked by the "dry-washer" process. One of them found some "float" from the ledge which cropped out boldly within 100 feet of an old, well-beaten smuggler trail leading from Mexico to Yuma. These locators disposed of their interest for \$155,000 to Charles D. Lane, of San Francisco, who organized a company of which he became president. The work of exploring the ore body and erecting a plant capable of handling 75 tons a day was rushed, and in less than a year from the time the company accepted the mine the bullion produced more than paid for the mine and plant. The mine has produced, up to the time of this writing, about \$2,760,000.

Two years ago the ledge faulted at the 800-foot level. The line of fault has been followed down to the 1,500-foot level and, although the point of continuation has not been reached, there are signs of its being close at hand. Despite the drawback referred to, the mine made a very good showing in its production of gold last year. It is justly regarded as one of the best gold mines in Arizona.

SOURCE OF PRODUCT.

		Fine ounces.
Gold—		
From quartz		216, 584
From placer		4, 800
Total		<u>221, 384</u>
Silver—		
From quartz		1, 911, 451
From lead ores		195, 000
From copper ores		1, 300, 000
Total		<u>3, 406, 451</u>

CALIFORNIA.

By CHARLES G. YALE.

The output of precious metals in California for the calendar year 1903, as shown by direct returns from producers received at the mint of the United States in San Francisco in answer to inquiries, was as follows:

Gold	\$16, 242, 464
Silver (commercial value)	517, 444
Total	16, 759, 908

This shows a reduction from the yield of the previous year of \$766,824, the output of both gold and silver being less. This should by no means be considered as indicating that the gold and silver mining industry is decreasing in importance, since it is the result of the temporary closing down of certain large producing quartz properties on account of labor troubles and strikes. This condition was not confined to any one county, but prevailed at certain important points in several of the counties of the State during the period under review. Eventually, the mines were again started up after a period of enforced idleness, but frequently with smaller crews of men and only part of their stamps running. This state of affairs has very naturally brought about a marked reduction in gold output for the year, as, in each case, where strikes occurred, they were at productive mines where work was going on upon a large scale with one or two hundred men employed. The smaller properties had little trouble in this direction.

Of the total gold and silver mined in the State in 1903, the sum of \$12,847,626 came from quartz mining operations, including mills and smelters; from dredge mining the returns were \$1,504,819; from hydraulic mining \$1,064,243; from surface placers, in its different forms, \$761,823, and from drift mining \$581,397. This shows that gravel mining returned \$3,912,282, as compared with the \$12,847,626 from quartz.

Including the operations of the dredges—really a form of placer mining—the surface placers show a yield for the year of \$2,266,642, while the drift and hydraulic mines combined yielded \$1,645,640, showing that the placers yielded \$621,002 more than the combined hydraulic and drift mines. (The silver is considered in commercial value in this chapter.)

It has generally been thought by those who have not given the matter much consideration that surface placer work was pretty well over in California some years ago. In fact, the placers were supposed to be practically worked out. Results now show, however, that there are plenty of surface gold deposits left, but the early-day miners did not know how to work those now being utilized. It remained for the invention of the gold dredge to solve the problem. It was more the

fault of the miners than of the mines that placer operations were gradually reduced in importance. In fact, the gold dredgers around Oroville are to-day making handsome profits out of ground which has been worked over previously by former generations of miners. In those days they sunk shallow shafts to bedrock, "drifted" a short distance, hoisted the gravel to the surface and washed it, leaving all the upper dirt or gravel and much of the lower as well for people of these days to handle by means of modern appliances.

The largest proportionate increase of output is now coming from the dredging operations, as compared with other classes of mining, and the prospects now are that this will continue for some little time as dredge-mining ground is being prospected in many parts of the State heretofore not considered of value for placer mining. In 1902 the dredgers produced \$801,295, while in 1903 the yield from this source was \$1,504,819, an increase which is about double in one year and amounting to \$703,524.

One very distinct advantage possessed by the system of dredging is the fact that before active operations are commenced the value of the ground may be pretty accurately determined. Drills are used for prospecting all over a given tract and the earth and gravel carefully sampled. Of course, an exact determination can not be made of the value of the entire piece of ground, but enough is known in advance to warrant the necessary expenditure for purchase and equipment. In one case recently, where the ground was prospected in advance, when the dredge had been operated some months it was found that the actual yield was 30 per cent above what had been expected, as shown by drill samples.

In those days when placer miners worked with pan, rocker, sluice, tom, etc., they were, of course, restricted to ground which would pay by those methods. In larger operations they had to have fall and dump, with a head of water above. But with dredging machinery handling large numbers of cubic yards daily, ground of low value can now be worked, and the fall, dump, and head of water formerly essential in placer mining may be ignored.

The machines generally in use dig about 30 feet below water level and pile the rocks and débris in the pits they have themselves dug and vacated. The water for washing the gravel is pumped, and very little is necessary to be added to keep the dredge afloat in its pit. The machines are not confined in their operations to river beds or water courses, as many suppose, but may be operated at any point where water may be led in to float them.

Most of the dredges thus far built handle from 3,000 to 4,000 cubic yards of material daily. When placer miners sink small shafts and hoist and wash their dirt they are able to handle from 2 to 2½ cubic yards daily, and are restricted to the best gravel nearest bedrock. In drift mining, the men only take out the richest of the gravel near bedrock and seldom move more than 4 to 5 cubic yards to the hand per day. The dredge takes all the dirt, top and bottom, and with 3 men on a shift, or 9 men per day of three shifts, does the work it would take 1,000 or 1,500 men to do by hand.

In six counties of the State, productive dredging enterprises are under way, and in other counties prospecting is being done. In fact, in some of the mountain counties, where it was at first supposed

dredges could not well be operated, lands are being purchased for the purpose. In some small valleys and canyons dams are being built to form reservoirs in which dredges may be floated and operated.

The center of the dredging industry of California continues to be at Oroville, Butte County, where nearly thirty machines are now at work and more are being built. Out of the \$1,504,819 obtained by the dredgers, in 1903, the sum of \$1,331,716 came from the operations at Oroville.

As a result of these operations, Butte County shows a larger increase in yield for the year than any other county in the State, notwithstanding the fact that the largest and most productive quartz mine in that county practically ceased operations during the period under review. This county, with a yield of only \$919,001 in 1902, gives returns of \$1,534,065 in 1903.

Much larger machines than heretofore used have lately been put into operation along the Yuba River, between Smartsville and Marysville, Yuba County, but the results of their work do not appear in the figures for 1903.

Hydraulic mining shows an output of \$216,451 less than it did in 1902. The industry does not attract capital as formerly, owing to the restrictions placed upon it by the laws in the drainage basins of the Sacramento and San Joaquin rivers. It was in that section of the State that these mines formerly flourished to the greatest degree, but since the restrictions enforced by the so-called Caminetti law much less gravel may be washed than formerly.

The laws do not prohibit hydraulic mining in California, though many persons suppose that to be the case. But there are restrictions placed upon it in the drainage basins above referred to, which compel the mine owners to impound their débris or tailings in settling basins so that no mud or dirt may be carried down to the navigable streams. This practically prevents the washing of gravel in immense quantities, as was formerly the case, as piping has to cease for certain periods in order to permit the muddy waters to settle behind the débris dams. Any surplus of muddy water, or water carrying too high a percentage of débris, is apt to cause the shutting down of the mine under the laws. In the northwestern tier of counties, including Siskiyou, Trinity, Del Norte, and Humboldt, hydraulic mining is carried on without any legal restrictions whatever, and it is in these counties that the industry is most flourishing.

Drift mines are being operated in the counties of Butte, Calaveras, Eldorado, Nevada, Placer, Plumas, Sacramento, Sierra, Siskiyou, Trinity, Tuolumne, and Yuba. The principal seat of the industry is in the counties of Placer and Sacramento. It may be confessed that the tabulated returns giving source of gold and silver do not give exact justice to this branch of mining, as much gold coming from it is, perhaps, credited to "placers." In sending in the returns to the mint the miners often classify their drift mines as placers, as the gravel is taken out of the tunnels and washed, or washing floors on the surface. Very probably fully \$150,000 to \$175,000 credited to the placers actually come from the drift mines. Drift mining does not grow as rapidly as other branches of the gold industry. The reason is that much capital must be invested in advance of possible profit, and it often takes two to four years to run the long tunnel necessary to tap the gravel chan-

nel in the buried river below the lava-capped "divides." Even then the channel may not be rich enough to be profitable, but with good channels these mines pay well.

As to quartz mining, the figures given in the tables in this chapter show that they furnish \$12,847,626 out of the total product of \$16,759,908 for the year under review. This is, moreover, the usual result. There are very few changes to be noted in the condition of the quartz industry. There is a prevailing tendency to increase the crushing capacity of the older mills at the more important mines, and when new mills are erected they are generally of more stamps than was formerly the custom. Much deeper shafts, too, are being sunk than formerly. A number of old mines, long idle, are now being reopened and suitably equipped. There is a constant demand for developed properties, and sales of this kind of mines are readily made.

One of the new mills of 120 stamps has recently made a surprising record for capacity and for cheap work. The mill has been crushing 800 tons of ore daily, or 6.67 tons to the stamp. The combined cost of mining and milling, after a long run, was only 46 cents per ton, which is the record for economical work. The ore body is very large and easily mined, and the whole plant is operated by electricity.

The following table shows the product of gold and silver as derived from quartz, placers, copper, and lead ores. The placers include surface, hydraulic, drift, and dredgers. In another table, given in this chapter, the gold and silver obtained in working copper and lead ores are included in the quartz figures:

Source.	Gold.	Silver.	Total.
Copper	\$265,627	\$265,668	\$531,295
Lead	7,614	77,399	85,013
Placer	3,909,498	2,784	3,912,282
Quartz	12,059,725	171,593	12,231,318
Total	16,242,464	517,444	16,759,908

The output of Alpine County was only nominal in 1903, having been much less than the previous year.

Amador, which is one of the important mother-lode counties of the State, produced less by \$17,757 than it did in 1902. This is the fourth county in rank of gold output and of gold and silver output. Some very deep mining is carried on, notably in the case of the Kennedy Mill and Mining Company at Jackson, where they have lately encountered as rich ore at the lowest level as at any of the upper levels. A fine new shaft, equipped to sink to 6,000 feet, has been sunk for use instead of the old shaft through which the mine has been worked many years. The mines in this county which are producing over \$100,000 each, annually, are the Keystone, at Amador City; Kennedy, Oneida, and Zeila, at Jackson, and Central Eureka, at Sutter Creek.

Butte County, which was sixth in rank of gold product in 1902, takes precedence of Kern in 1903, being fifth in rank. Its increase of \$615,064 for the year is higher than that of any other county in the State, which is entirely due to the operations of the gold dredgers, which dug out \$1,331,716 of the total of \$1,534,065 produced in the county in 1903. In fact, most of the gold came from the gravels.

The Gold Bank, which for many years was the largest producer in the county, is now worked on a smaller scale. The principal producing mines are the Big Butte, hydraulic, at Berdans; Gold Bank, at Forbestown; NimsheW, at NimsheW; and the following dredging companies at Oroville: American, Boston and Oroville, Butte, Cherokee, Indiana, Kia Ora, Lava Bed, Marigold, Oroville Exploration, Oroville Dredging, Pennsylvania, Feather River, Exploration and Boston, and California. Some of these companies own as many as three to five dredges and are building others. Over a million and a quarter dollars were mined in 1903 in the vicinity of Oroville from ground which was worked over, and considered worked out, from twenty to fifty years ago. In fact, after the whites abandoned these diggings they were "coyoted" by Chinese for many years, the section known as the Lava Beds sometimes giving employment to as many as 10,000 Chinese during the water season. The dredges are working close up to the town limits and much land which has been built upon for years has been purchased by the dredging companies.

Calaveras County still maintains its second place in rank among the gold-producing counties of the State, although it fell slightly below the \$2,000,000 mark in 1903, the decrease in product shown by the returns having been \$146,768 for the year. Over 1,400 miners are employed in this county, mainly in the quartz properties, the gravel mines of different classes altogether only producing about \$100,000 a year. The principal producing mines are the Angels, Lightner, and Utica, at Angels; Penn Chemical Company, at Campo Seco; Gwin, at Gwin mine; Royal Consolidated, at Hodson; Melones, at Melones; and Sheep Ranch, at Sheep Ranch. Of these, the Utica was for many years the largest producing quartz mine in the State, a position held last year, however, by the North Star, of Nevada County.

Del Norte County has a few hydraulic and placer mines which show a slightly increased yield over the previous year. Eldorado County shows something of a falling off in product, some of the former producers having dropped out of the list. The total of \$277,304 comes mainly from small mines. There are no producers of over \$10,000 a year except the Union and River Hill quartz mine.

Fresno County shows the largest proportionate falling off of any in the State, which is mainly owing to the closing down of a copper property where some gold was obtained in the ore and the quartz bought for flux. The largest number of mines in the county are at Pollasky, but these are no producers of note.

The mines of Humboldt County are mostly hydraulic and are at Blocksburg, Clover Flat, Hoopa, Klamath, Orick, Orleans, and Weitchpec, but no one of these produced in 1903 over \$10,000.

The mines of Inyo County are practically all quartz and are at Argus, Ballarat, Bigpine, Cerro Gordo, Citrus, Darwin, Independence, Lonepine, Modoc, and Tinemaha. There are no large producers at present being worked, most of the operations being on a small scale.

Kern County, which is sixth in rank of gold production and second in that of silver, shows a decrease of \$128,150 from the figures of the previous year. This is due to miners' strikes at the principal gold camp—Randsburg—causing the stoppage of work for some time of the principal mines and largest producers. The number of miners employed in the county is 911. The principal mines which are producing are the Zada, at Caliente; Old Keyes, at Keyesville; Echo,

Exposed Treasure, and Karma, at Mohave; Jeanette and Rawhide, at Piute; Butte Lode, Gold Coin, Sunshine, and Yellow Aster, at Randsburg, and Lida, at Rosamond. The Yellow Aster produced nearly half of the gold from the county in 1903, the Exposed Treasure coming next in point of yield.

Lassen County shows an increase of \$68,651 for the year, which is due to the operations of the Lassen Mining Company, of Hayden Hill, the only mine of any moment in the county. Los Angeles County has very few productive mines, but the yield for the year is slightly increased.

Madera shows an increase of \$57,942, having more than doubled its yield from that of the previous year. The mines are all quartz, and are at Coarse Gold, Gold Grub Gulch, and O'Neals.

Mariposa decreased its product for the year by the sum of \$89,650. The mines are all quartz and the principal ones are the Mary Harrison Merced at Coulterville, Mariposa Mining and Commercial Company at Mount Bullion, and Hayseed at Whitlock. About four-fifths of the entire output came from the mines of the Mariposa Mining and Commercial Company, operating on the old "Fremont Grant."

Mono County evinces a material decrease in product for the year; the mines are practically all quartz, and are at Benston, Bodie, Bridgeport, Coleville, and Lundy. The principal producer in the county is the Standard Consolidated, of Bodie, it having yielded over \$300,000.

Monterey County shows a slight increase in yield from the placer mines near Jolon, in Los Burros district.

Nevada County increases its yield for the year by \$312,435, which is more of an increase than any county of the State, with the exception of Butte. It stands first in rank of all the precious metal producing counties of California, a position it has held for many years. The leading gold-producing mine in the State, the North Star, is in this county, and also the second one in point of production, the Empire Mines, both at Grass Valley. It is the only county in California having the distinction of having produced over \$2,000,000 in gold in 1903, and really produced nearly \$2,500,000.

In fact, Nevada produced \$553,922 in gold more than any other California county in 1903. It also gives employment to more miners than any of the other counties, except Tuolumne, which has practically the same number. Some little hydraulic and surface mining is carried on, but about 95 per cent of the total gold output came from quartz-mining operations. The principal producing mines are the Empire Mines, North Star, Pennsylvania, Consolidated, and Allison Ranch at Grass Valley; Crystal Lake, at Meadow Lake; Champion, Oustomah, Red Dog, and Sierra Queen, at Nevada City; Badger Hill and Cherokee, North Bloomfield, and Union Blue Gravel at North Bloomfield; Eureka Lake and Kate Hayes at North San Juan; Bull Run at Relief, and Red Cross at Washington.

Orange County makes only a nominal product from a mine near Santa Ana.

Placer County materially reduced its output as compared with the previous year. Some of the larger mines made smaller yields than usual, and one famous drift mine, the Red Point, which has produced largely for years, has had all its channel worked out and has closed down for good. It has, however, paid its French owners handsomely for their investment. There are many drift and hydraulic mines in

this county, though many of the latter are not now being operated. The most productive mines are the Davis and the Gaylord at Auburn; Lost Emigrant at Donner; Paragon at Forest Hill; Big Dipper, Jupiter, Larkin, and Morning Star at Iowa Hill; El Dorado and Morning Star at Last Chance; Hidden Treasure at Michigan Bluff, Three Stars at Ophir, Shady Run at Shady Run, and Herman at Westville.

Plumas had not so large a product of gold in 1903 as in the previous year. Most of the mines of the county are gravel, but no very extensive operations are being conducted. The largest producer is the Jamison Mining Company, at Johnsville. This is a quartz property. Mines are being worked at the following camps: Brush Creek, Buck, Cascade, Crescent Mills, Cromberg, Eclipse, Genessee, Greenville, Johnsville, La Porte, Longville, Lumpkin, Mohawk, Nelson Point, Meadow Valley, Quincy, Seneca, Spanish Ranch, Taylorsville, and Wash.

The Riverside County output is very materially reduced for the year. There are very few miners employed, and only about half a dozen mines being worked to a productive stage.

Sacramento County has only about half a dozen productive mining operations of any scale of magnitude, and these are drift mines and dredgers near Folsom. Mining in a small way is also done at Michigan Bar. The drift mines at Blue Ravine, above Folsom, did not return so much as the previous year, although one new one has become a producer. The region referred to is being prospected by several companies, both by drills and shafts.

San Bernardino makes practically the same showing of gold and silver that it did in the previous year. Nearly two-thirds of the output comes from the Bagdad-Chase group of mines at Stagg. The Brooklyn at Dale, Amity at Slate range, and Blue and Gold, Rose and Ward at Victorville, are the only other producers of note from which returns were received.

San Diego County increases its product by upward of \$30,000. All but about \$50,000 of the year's product came from two mines—the Free Gold at Hedges and the California King at Picacho. The mines at Julian and Banner are being worked only in a small way, with the exception of the Helvetia. The amounts reported from Escondido Mesquite, and Ramona are only nominal.

Less than \$2,000 was the entire product for 1903 from the placers at La Panza, in San Luis Obispo County.

Shasta County shows a large falling off in gold and silver output and drops out of the million-dollar county list as far as these metals are concerned. It was seventh in rank in gold product in 1902, and first in silver. It keeps its silver rank for 1903, as well as that for gold, but the product of both metals was materially less. This is mainly due to labor troubles, both at the large copper-smelting works and at some of the larger gold mines in the county. The strikes caused partial or complete shutdowns, which materially had an effect on the output of both smelters and mills. The smelters usually purchase large quantities of gold and silver bearing quartz for flux, and when not running to full capacity there was less demand for quartz. There are two large copper-smelting plants in Shasta County, the Mountain Copper at Keswick and the Bully Hill at Winthrop. One other is being put up and still others are projected. There are 1,690 miners employed in Shasta County. The largest mines among the

producers are the Brown Bear and Hazel at French Gulch; Mountain Copper at Keswick, Midas at Knob, Mount Shasta at Shasta, Central and Bully Hill at Winthrop. The Midas is the largest gold producer, and the smelting works turn out the most silver.

The annual output of gold in Sierra remains about the same. The county is noted for its gravel mines, of which there are many small ones being operated. The largest producers, however, are quartz properties, notably the Crœsus, at Allegheny, and Sierra Buttes at Sierra City. The latter mine, worked for many years by an English company, is now in new hands and the old upper levels are to be again explored for ore, while the milling facilities are to be increased. The largest producing mines in this county are the Crœsus and Golden Star at Allegheny, White Bear at Downieville, Copper, New York, and Sierra Buttes at Sierra City, and Caledonia at St. Louis.

Siskiyou shows a falling off of about one-third of the product of the year 1902. The largest amount of gold comes from the hydraulic mines, though a considerable amount is derived from quartz operations. There are no restrictions in hydraulic mining in this county, most of the streams flowing into the Klamath River, which is a nonnavigable stream, no harm is done by hydraulic débris. The mines in this county producing over \$5,000 each in 1903 were as follows: Helena at Callahan, King Solomon and Salmon River Hydraulic at Cecilville, Bloomer at Forks of Salmon, Brokaw, Eastlick, Joaquin, Morrison, and New York at Fort Jones, Consolidated Gold Run at Gold, Old Pinery at Greenview, China Creek, China Hill, Clauson, Happy Camp, and Siskiyou at Happy Camp, Spangler at Hawkinsville, Minetta at Nolton, Yreka at Rollin, Free Coinage, Free Trade, and Salmon River at Sawyers Bar, Andrews at Scott River, Portuguese at Seiad, and Mono and Schrœder at Yreka.

Very little mining is now done in Stanislaus County. The operations are confined to the vicinity of Knights Ferry.

Trinity County returns show a falling off in product of nearly \$300,000 from the previous year. While this is notably a gravel mining region, the largest single producers are usually quartz mines, and the quartz yield for 1903 was within a few thousand dollars of the product of the hydraulic mines. The most gold, however, from any single property was from the La Grange, hydraulic, near Weaverville. The largest producer among the quartz mines is the Trinity, at Dedrick. The mines in this county producing over \$5,000 each, in 1903, were, the Cox Bar, at Big Bar; Differbacher, at Carrville; Holland and Trinity, at Coffee; Brown Bear and Lappin, at Deadwood; Globe and Trinity, at Dedrick; Mountain Boomer, at Denny; Union Consolidated, at Dorleska; Paulsen, at Douglas City; Burger, Franklin, Huertevant, and Maple Creek, at Junction City; Fairview, at Minersville; Altabert and Sykes, at Trinity Center; and the Hupp group and La Grange, at Weaverville.

There are very few mines in Tulare County, and they are all quartz. Most of these are small operations at White River, but there is one—the Minnie Ellen—right out in the San Joaquin Valley, near Plano.

Tuolumne is the third county in the State in point of gold product, and is one of the famous Mother Lode counties. There are, according to returns, 1,721 miners employed in the mines of Tuolumne. The largest producing property is the Eagle-Shawmut, at Chinese Camp, where very extensive reduction works have been erected and put in

operation. The principal yielding mines are the Big Casino, at Big Oak Flat; Mohican and Providence, at Carters; Eagle-Shawmut, at Chinese Camp; Confidence, at Confidence; Republican, at Jacksonville; Rawhide and Harvard, at Jamestown; Little Bonanza and Neale, at Sonora; Black Oak, Soulsby, and Draper, at Soulsbyville, and Jumper, at Stent.

The few quartz mines operated in Ventura County are at Gorman and Griffin, but the output is small.

Yuba County had a smaller output in 1903 than in the previous year. The largest quartz mine worked under bond, having proved disappointing, was closed down. The gravel mines being worked are at Browns Valley, Brownsville, Bullards Bar, Camptonville, Dobbins, Marysville, Strawberry Valley, Wheatland, and Woodleaf. Since the close of 1903 two very large dredgers have been installed in the Yuba River between Smartsville and Marysville. All the available dredging ground in that section has been purchased and is being prospected. It is expected that a heavy gold yield will result from the dredging operations, the ground being rich.

The following table shows the distribution of the gold and silver product of California, by counties, in the calendar year 1903, and is based on returns received from producers at the mint at San Francisco:

PRODUCT OF CALIFORNIA, BY COUNTIES, 1903.

RECAPITULATION.

County.	Gold.	Silver.	Total.
Alpine.....	\$2,701	\$146	\$2,847
Amador.....	1,609,744	4,336	1,614,080
Butte.....	1,533,707	358	1,534,065
Calaveras.....	1,904,125	68,280	1,972,405
Del Norte.....	7,183	.....	7,183
Eldorado.....	277,304	.....	277,304
Fresno.....	21,538	111	21,649
Humboldt.....	38,509	.....	38,509
Inyo.....	66,045	18,200	84,245
Kern.....	1,022,353	114,614	1,136,967
Lassen.....	91,102	1,203	92,305
Los Angeles.....	8,674	22	8,696
Madera.....	93,070	3	93,073
Mariposa.....	542,355	3,353	545,708
Mono.....	334,713	20,067	354,780
Monterey.....	8,920	.....	8,920
Nevada.....	2,458,047	3,252	2,461,299
Orange.....	150	.....	150
Placer.....	570,571	1,116	571,687
Plumas.....	324,112	510	324,622
Riverside.....	13,453	136	13,589
Sacramento.....	335,646	234	335,880
San Bernardino.....	381,197	59,199	440,396
San Diego.....	371,516	1,444	372,960
San Luis Obispo.....	1,840	.....	1,840
Shasta.....	771,242	203,991	975,233
Sierra.....	310,770	476	311,246
Siskiyou.....	613,576	22	613,598
Stanislaus.....	52,869	256	53,125
Trinity.....	606,728	2,085	608,813
Tulare.....	9,215	.....	9,215
Tuolumne.....	1,732,572	13,989	1,746,561
Ventura.....	1,087	.....	1,087
Yuba.....	125,830	41	125,871
Total.....	16,242,464	517,444	16,759,908

CALIFORNIA'S SOURCE OF GOLD AND SILVER, 1903.

County.	Quartz.	Placer.	Drift.	Hydraulic.	Dredge.	Total.
Alpine	\$2, 847					\$2, 847
Amador	1, 568, 613	\$44, 967	\$500			1, 614, 080
Butte	15, 047	56, 651	32, 990	\$97, 661	\$1, 331, 716	1, 534, 065
Calaveras	1, 868, 804	39, 507	21, 800	29, 487	12, 807	1, 972, 405
Del Norte		4, 683		2, 500		7, 183
Eldorado	187, 215	42, 410	9, 919	37, 760		277, 304
Fresno	19, 359	2, 290				21, 649
Humboldt		1, 827		36, 682		38, 509
Inyo	80, 365	3, 880				84, 245
Kern	1, 136, 267	700				1, 136, 967
Lassen	92, 305					92, 305
Los Angeles	7, 196			1, 500		8, 696
Madera	93, 073					93, 073
Mariposa	545, 708					545, 708
Mono	353, 538	1, 242				354, 780
Monterey		8, 920				8, 920
Nevada	2, 427, 392	2, 075		31, 832		2, 461, 299
Orange	150					150
Placer	85, 850	226, 740	135, 534	123, 563		571, 687
Plumas	141, 650	159, 872	11, 320	11, 780		324, 622
Riverside	13, 589					13, 589
Sacramento		1, 000	232, 724		102, 156	335, 880
San Bernardino	439, 576	470	350			440, 396
San Diego	369, 454	3, 000		506		372, 960
San Luis Obispo		1, 840				1, 840
Shasta	957, 602	16, 788		843		975, 233
Sierra	164, 969	34, 048	78, 234	33, 995		311, 246
Siskiyou	208, 656	34, 581	35, 096	327, 925	7, 340	613, 598
Stanislaus	53, 125					53, 125
Trinity	275, 342	28, 608	6, 230	287, 833	10, 800	608, 813
Tulare	9, 215					9, 215
Tuolumne	1, 729, 202	1, 089	16, 200	70		1, 746, 561
Ventura	1, 087					1, 087
Yuba	430	44, 635	500	40, 306	40, 000	125, 871
Total	12, 847, 626	761, 823	581, 397	1, 064, 243	1, 504, 819	16, 759, 908

The following table shows comparative output of the counties for 1902 and 1903:

CALIFORNIA'S COMPARATIVE OUTPUT FOR TWO YEARS, 1902 AND 1903.

County.	1902.	1903.	Increase.	Decrease.
Alpine	\$14, 129	\$2, 847		\$11, 282
Amador	1, 631, 837	1, 614, 080		17, 757
Butte	919, 001	1, 534, 065	\$615, 064	
Calaveras	2, 119, 173	1, 972, 405		146, 768
Colusa	850			850
Del Norte	5, 450	7, 183	1, 733	
Eldorado	335, 083	277, 304		57, 779
Fresno	75, 627	21, 649		53, 978
Humboldt	60, 015	38, 509		21, 506
Inyo	88, 881	84, 245		4, 636
Kern	1, 265, 117	1, 136, 967		128, 150
Lassen	23, 654	92, 305	68, 651	
Los Angeles	7, 209	8, 696	1, 487	
Madera	35, 131	93, 073	57, 942	
Mariposa	635, 358	545, 708		89, 650
Mono	547, 144	354, 780		192, 364
Monterey	6, 878	8, 920	2, 042	
Nevada	2, 148, 864	2, 461, 299	312, 435	
Orange	250	150		100
Placer	846, 707	571, 687		275, 020
Plumas	381, 203	324, 622		56, 581
Riverside	48, 041	13, 589		34, 452
Sacramento	426, 224	335, 880		90, 344
San Bernardino	453, 908	440, 396		13, 512
San Diego	340, 871	372, 960	32, 089	
San Luis Obispo	2, 399	1, 840		559
Santa Barbara	200			200
Shasta	1, 185, 593	975, 233		210, 360
Sierra	326, 466	311, 246		15, 220
Siskiyou	907, 222	613, 598		293, 624
Stanislaus		53, 125	53, 125	
Trinity	720, 542	608, 813		111, 729
Tulare	11, 648	9, 215		2, 433
Tuolumne	1, 798, 409	1, 746, 561		51, 848
Ventura	2, 016	1, 087		929
Yuba	155, 632	125, 871		29, 761
Total	17, 526, 732	16, 759, 908	1, 114, 568	1, 911, 392

COUNTIES BY RANK OF PRODUCTION FOR THE TWELVE MONTHS ENDING DECEMBER 31, 1903.

County.	Gold.	County.	Silver.	County.	Gold and silver.	Total.
Nevada.....	\$2,458,047	1. Shasta.....	\$203,991	Nevada.....	\$2,458,047	\$2,461,299
Calaveras.....	1,904,125	2. Kern.....	111,614	Calaveras.....	1,904,125	1,972,405
Tuolumne.....	1,732,572	3. Calaveras.....	68,280	Tuolumne.....	1,732,572	1,746,561
Amador.....	1,609,744	4. San Bernar- dino.....	59,199	Amador.....	1,609,744	1,614,080
Butte.....	1,533,707	5. Mono.....	20,067	Butte.....	1,533,707	1,534,065
Kern.....	1,022,353	6. Inyo.....	18,200	Kern.....	1,022,353	1,136,967
Shasta.....	771,242	7. Tuolumne.....	13,989	Shasta.....	771,242	975,233
Siskiyou.....	613,576	8. Amador.....	4,336	Siskiyou.....	613,576	613,598
Trinity.....	606,728	9. Mariposa.....	3,353	Trinity.....	606,728	608,813
Placer.....	570,571	10. Nevada.....	3,252	Placer.....	570,571	571,687
Mariposa.....	542,355	11. Trinity.....	2,085	Mariposa.....	542,355	545,708
San Bernardino.....	381,197	12. San Diego.....	1,444	San Bernardino.....	381,197	440,396
San Diego.....	371,516	13. Lassen.....	1,203	San Diego.....	371,516	372,960
Mono.....	334,713	14. Placer.....	1,116	Mono.....	334,713	354,780
Sacramento.....	335,646	15. Plumas.....	510	Sacramento.....	335,646	335,880
Plumas.....	324,112	16. Sierra.....	476	Plumas.....	324,112	324,622
Sierra.....	310,770	17. Butte.....	358	Sierra.....	310,770	311,246
Eldorado.....	277,304	18. Stanislaus.....	256	Eldorado.....	277,304	277,304
Yuba.....	125,830	19. Sacramento.....	234	Yuba.....	125,830	125,871
Madera.....	93,070	20. Alpine.....	146	Madera.....	93,070	93,073
Lassen.....	91,102	21. Riverside.....	136	Lassen.....	91,102	92,305
Inyo.....	66,045	22. Fresno.....	111	Inyo.....	66,045	84,245
Stanislaus.....	52,869	23. Yuba.....	41	Stanislaus.....	52,869	53,125
Humboldt.....	38,509	24. Los Angeles.....	22	Humboldt.....	38,509	38,509
Fresno.....	21,538	25. Siskiyou.....	22	Fresno.....	21,538	21,649
Riverside.....	13,453	26. Madera.....	3	Riverside.....	13,453	13,589
Tulare.....	9,215			Tulare.....	9,215	9,215
Monterey.....	8,920			Monterey.....	8,920	8,920
Los Angeles.....	8,674			Los Angeles.....	8,674	8,696
Del Norte.....	7,183			Del Norte.....	7,183	7,183
Alpine.....	2,701			Alpine.....	2,701	2,847
San Luis Obispo.....	1,840			San Luis Obispo.....	1,840	1,840
Ventura.....	1,087			Ventura.....	1,087	1,087
Orange.....	150			Orange.....	150	150
Total.....	16,242,464		517,444		16,242,464	16,759,908

This appended table shows, by counties, the number of men employed in gold and silver mines in California during 1903, and also those at work in copper mines or lead mines, which produced gold and silver. The table is made from returns to the United States mint at San Francisco by producers, postmasters, gold-dust buyers, and others in the different camps. This covers those regularly employed in mining or working for themselves, but does not include prospectors not directly employed in working mines.

MINERS EMPLOYED IN CALIFORNIA, 1903.

County.	Total.	County.	Total.
Alpine.....	50	Placer.....	1,591
Amador.....	1,493	Plumas.....	1,320
Butte.....	895	Riverside.....	98
Calaveras.....	1,461	Sacramento.....	361
Del Norte.....	46	San Bernardino.....	631
Eldorado.....	534	San Diego.....	468
Fresno.....	163	Santa Barbara.....	2
Humboldt.....	228	San Luis Obispo.....	16
Inyo.....	374	Shasta.....	1,690
Kern.....	911	Sierra.....	1,181
Lassen.....	88	Siskiyou.....	1,592
Los Angeles.....	48	Stanislaus.....	50
Madera.....	86	Trinity.....	966
Mariposa.....	438	Tulare.....	15
Monterey.....	18	Tuolumne.....	1,721
Mendocino.....	8	Ventura.....	25
Mono.....	386	Yuba.....	306
Nevada.....	1,721		
Orange.....	8	Total.....	20,989

COLORADO.

By FRANK M. DOWNER,

Assayer in charge United States mint, Denver, Colo.

The mineral production of Colorado for the year 1903 was of the following values: Gold (at \$20.67 per ounce), \$22,705,711; silver (\$1.29 per ounce, coining value), \$17,144,984; lead (at \$0.04286 per pound), \$4,747,459; copper (at \$0.138 per pound), \$1,080,019; zinc (at \$0.0543 per pound), \$5,141,820; total, \$50,819,993.

As compared with the previous year the production of gold showed a falling off of \$5,810,877, and that of silver \$3,284,538. The increases in lead, copper, and zinc output were, respectively, \$423,523, \$74,502, and \$2,603,878.

SEVERE LABOR TROUBLES.

The decreased precious metals values were entirely due to persistent labor disturbances which occurred during the greater part of the year in the Idaho Springs, Cripple Creek, and Telluride mining districts, with sympathetic strikes in other camps and apprehension general throughout the diversified mining industries of the State.

The large reduction plants at Colorado City and Florence were in operation only part of the year, and much of the time with materially reduced forces under military protection.

The smelters of the State also suffered from the industrial disquietude, the Omaha and Grant plant, at Denver, permanently closing, and the Globe abandoning a number of furnaces while pickets from the labor unions harassed its operations.

Nearly the entire militia equipment of the State was stationed for months at Cripple Creek and Telluride, a quasi-martial law having been proclaimed.

In view of these unfortunate conditions the large mineral output for the year was really remarkable, and it indicates the possibilities of the mineral yield under normal circumstances, which, after a protracted contest, now seems assured.

NEW CAMPS.

The year's prospecting resulted in the opening up of ore bodies in Gunnison, Chaffee, and La Plata counties, whose permanency and continuity will be thoroughly exploited in the spring of 1904.

MOLYBDENUM.

In the western section of Chaffee County, contiguous to the mining town of Hancock, a promising deposit, or ledge, of molybdenite was opened up and pronounced of a desirable quality by Eastern dealers. Suitable machinery for the development of this find is in course of manufacture.

EL PASO DRAINAGE TUNNEL.

The completion of the great unwatering tunnel in the Cripple Creek district, known as the El Paso, has proved of vast benefit to scores of well-known properties whose usefulness was seriously impaired by the large volume of water encountered in the lower levels; a number having been compelled to suspend operations. Formerly it cost \$2,500 a vertical foot to discharge the water of the Elkton mine alone, not including the heavy cost of apparatus.

IMPROVED CHEMICAL EXTRACTION.

Improvement in chlorination and cyanide extraction goes steadily on, the percentage of saving being yearly increased. In the important item of slimes persistent experiments have contributed material successes. Wilfley, Blake, and other separators have caused an increase in the profitable treatment of low grades.

SOURCE OF PRODUCTION.

Gold:

Placer bullion.....	\$600,000
From chlorination mills.....	8,176,458
From cyanide mills.....	1,392,567
From dry and copper ores.....	8,390,163
From lead, or wet ores.....	4,146,523
Total.....	22,705,711

Silver:

From quartz.....	\$3,771,896
From lead and copper ores.....	13,373,088
Total.....	17,144,984

TOTAL PRODUCTION OF COLORADO, 1903.

County.	Gold.	Silver. ^a	Total gold and silver.	Lead.	Copper.	Zinc.	Grand total.
Boulder.....	\$429,205	\$79,725	\$508,930	\$4,933	\$849		\$514,712
Clear Creek.....	470,011	1,098,622	1,568,633	147,946	40,003	\$35,621	1,792,203
Chaffee.....	168,286	167,117	335,433	10,685	10,983	163	357,264
Costilla.....	156	212	368				368
Conejos.....	589	20	609				609
Custer.....	80,732	206,562	287,291	16,600	7,209		311,103
Dolores.....	41,200	132,969	174,169	6,147	20,367		200,683
Eagle.....	13,971	34,861	48,832	29,048	4,535		82,415
Fremont.....	133	154	287		2,732		3,019
Garfield.....	96	5	101				101
Gilpin.....	1,344,033	484,118	1,828,151	40,544	84,455		1,953,150
Grand.....	389	2	391				391
Gunnison.....	48,966	84,005	132,971	5,472	2,070	3,019	143,532
Hinsdale.....	23,769	40,657	64,426	33,665	1,555	5,756	105,402
Jefferson.....					30		30
Lake.....	1,299,261	6,472,384	7,771,645	1,939,382	354,202	4,521,905	14,987,134
Larimer.....	603		603		7,825		8,428
La Plata.....	136,566	9,713	146,279	1	112		146,392
Las Animas.....	20	383	403	39	855		1,297
Montrose.....	646	2,596	3,242		1,507		4,749
Montezuma.....	3,700	49	3,749				3,749
Mineral.....	175,860	2,075,272	2,251,132	368,624	18	143,026	2,762,800
Ouray.....	2,155,165	539,489	2,694,654	143,605	52,496		2,890,755
Park.....	135,238	67,187	202,425	34,395	814		237,634
Pitkin.....	4,443	3,315,057	3,319,500	1,425,946	1,612		4,747,058
Rio Grande.....	11,895	4,335	16,230		701		16,931
Routt.....	19,806	115	19,921				19,921
Saguache.....	1,922	28,864	30,786	16,146	9,302	2,422	58,656
San Juan.....	1,708,539	1,007,908	2,716,447	298,695	405,584		3,420,726
San Miguel.....	1,174,735	951,846	2,126,581	159,762	64,344		2,350,687
Summit.....	218,829	284,506	503,335	65,306	5,721	29,908	604,270
Teller.....	12,967,338	51,451	13,021,789				13,021,789
County unknown...	69,609	1,770	71,379	518	135		72,032
Total.....	22,705,711	17,144,984	39,850,695	4,747,459	1,080,019	5,141,820	50,819,993

^a Coining value.

STATEMENT OF BULLION OPERATED ON AT THE UNITED STATES MINT, DENVER, COLO.,
DURING THE CALENDAR YEAR 1903.

County.	Gold.	Silver.	Total.
Boulder	\$67,696.19	\$404.88	\$68,101.07
Clear Creek	28,854.81	199.98	29,054.79
Chaffee	27,036.23	100.41	27,136.61
Conejos	588.67	8.45	597.12
Dolores	996.85	13.24	1,010.09
Gilpin	237,515.34	1,450.10	238,965.44
Gunnison	409.22	3.27	412.49
Garfield	96.08	1.51	97.59
Lake	11,996.24	134.45	12,130.69
La Plata	18,261.73	131.54	18,393.27
Montezuma	1,466.78	2.27	1,469.05
Ouray	1,635,449.38	18,329.80	1,653,779.18
Park	12,620.25	57.73	12,677.98
Routt	19,289.10	38.57	19,327.67
Sagauche	1,178.39	19.55	1,197.94
San Juan	148,594.58	250.77	148,845.35
San Miguel	1,122,581.84	13,227.17	1,135,809.01
Summit	121,451.11	838.09	122,289.20
Teller	7,555,438.48	946.81	7,556,385.29
County unknown	441,839.63	2,398.34	444,237.97
Smelter deposits	1,272,353.71	458.93	1,272,812.64
Total	12,725,714.61	39,015.86	12,764,730.47

FOREIGN TO COLORADO.

State or Territory.	Gold.	Silver.	Total.
Alaska	\$2,643.70	\$8.11	\$2,651.81
Arizona	551,517.64	7,902.17	559,419.81
California	1,619.05	54.60	1,673.65
Idaho	8,612.60	44.07	8,656.67
Mexico	3,069.21	3.39	3,072.60
Montana	173.00	.39	173.39
Nevada	106.10	1.12	107.22
New Mexico	117,547.11	486.66	118,033.77
Oregon	239.41	3.25	242.66
South Dakota	5,581.00	100.55	5,681.55
Utah	118,053.97	726.17	118,780.14
Wyoming	2,432.57	6.23	2,438.80
Total	811,595.36	9,336.71	820,932.07

MISCELLANEOUS.

Description.	Gold.	Silver.	Total.
Jewelry	\$19,703.88	\$142.86	\$19,846.74
United States coin	250.26	.....	250.26
Redeposits	858.90	6.69	865.59
Total	20,813.04	149.55	20,962.59

RECAPITULATION.

Source.	Gold.	Silver.	Total.
Colorado	\$12,725,714.61	\$39,015.86	\$12,764,730.47
Foreign to Colorado	811,595.36	9,336.71	820,932.07
Miscellaneous	20,813.04	149.55	20,962.59
Grand total	13,558,123.01	48,502.12	13,606,625.13

IDAHO.

By H. SMITH WOOLLEY,

Assayer in charge United States assay office at Boise, Idaho.

The total value of the metals produced in Idaho during 1903 shows a gain of \$5,500,000 over that of the previous year. The output of each metal shows a substantial increase, but it is in silver and lead mining that the greatest advancement has been made. The production of silver increased from 5,942,714 fine ounces in 1902 to 6,915,036 ounces in 1903, while that of lead jumped from 128,606,458 pounds to 214,252,369 pounds. The production of gold showed an increase of about 10,000 fine ounces.

The great silver-lead district of the State being in the comparatively small area embraced in what is known as the "Coeur d'Alene," conditions which govern the mining in this section control to a large extent the output of the State in these two metals.

During the past year the embargo placed on the output of lead by the smelter trust was removed, thus enabling the operators to work their properties to the fullest capacity. Through the organization of the mining companies and the establishment of an employment bureau, the labor situation has been much improved, the union no longer being able to dictate in any of the essential matters relating to working the mines.

The total output of silver in the Coeur d'Alene district for 1903 was 5,471,620 fine ounces, while that of lead was 207,382,448 pounds. This result is obtained from a compilation of the actual returns from the various mining companies of the output of their respective properties.

The unrestricted output of the mines has encouraged the owners to make important improvements involving a large investment of capital, which more than anything else demonstrates their abiding faith in the permanence of the district. During the year an electric-power transmission line was completed from Spokane Falls to Burke, a distance of 101 miles, which carries about 1,500 horsepower. The displacing of steam power by electricity for all purposes in the mines marks a revolution in mining progress. New machinery has been installed in several of the mines, and a large amount of development work carried on, which points to a still further increased output for the coming year.

The organization of the Federal Mining and Smelting Company, which involved the consolidation of the Standard, Mammoth, Tiger-Poor-Man, and Empire-State properties, represents one of the great mining deals of the year, the capital necessary for the proposition approximating \$30,000,000.

The output of gold from the State made some increase, due largely to the activity in quartz mining. The placer output has remained

practically the same for several years. The installation of dredging enterprises along the Snake River, in Boise basin, and around Warren may increase this in the next few years.

In quartz mining the greatest activity has been displayed in the developments of the two youngest though perhaps best-known districts of the State—the Hump and Thunder Mountain. In the former there was a large increase in the output credited to the Jumbo and Cracker Jack mines, the only two which have entered the field as regular producers. Several other properties will be equipped with mills this coming year.

In the Thunder Mountain district development work has been retarded, owing to the inaccessibility of the region. Several large companies have been working their claims, but installation of mills and reduction plants has been impossible. The State wagon road was not completed in 1903, and all supplies and tools were packed in. The Dewey mill, the only one in the locality, has been running with 5 and 10 stamps, and has been a regular bullion shipper. This mill was constructed with the special purpose of being packed in on mules and horses. As soon as the road is opened a larger plant will be constructed.

This coming year other mining companies will rush machinery and supplies in larger quantities toward the camp, with the expectation of getting them in before fall. Active work will begin on the wagon road as soon as the weather will permit, and it will be hastened to completion. The fact that the large companies which have been doing development work have satisfied themselves as to the extent and value of the ore bodies sufficiently to warrant large expenditures for machinery indicates that the district will soon be in the list of large gold producers.

The following compilation of statistics has been made from the most reliable sources, taken for the most part direct from the mine owners themselves, and it is believed that it can be depended upon as reliable:

PRODUCT OF GOLD AND SILVER IN IDAHO, BY COUNTIES, DURING CALENDAR YEAR 1903.

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Ada.....	576	\$11,907	166	\$215
Bannock.....	511	10,563	95	123
Bingham.....	641	13,256	128	165
Blaine.....	1,143	23,627	513,111	663,455
Boise.....	14,903	308,072	4,361	5,637
Canyon.....	443	9,157	83	107
Cassia.....	545	11,266	122	158
Custer.....	6,113	126,367	79,089	102,256
Elmore.....	5,103	105,488	2,470	3,194
Idaho.....	11,449	236,671	3,912	5,058
Lemhi.....	11,870	245,374	2,542	3,287
Lincoln.....	459	9,488	173	224
Oneida.....	539	11,142	157	203
Owyhee.....	20,479	423,338	758,569	980,776
Shoshone.....	7,651	158,160	5,473,665	7,077,062
Washington.....	1,312	27,121	76,363	98,732
Total.....	83,737	1,730,997	6,915,036	8,940,652

TOTAL PRODUCT OF IDAHO DURING CALENDAR YEAR 1903.

Metal.	Quantity.	Value.
Gold.....fine ounces..	83,737	\$1,730,997
Silver.....do.....	6,915,036	8,940,652
Lead.....pounds..	214,252,369	9,641,356
Copper.....do.....	1,111,423	133,928
Total.....		20,451,933

DISTRIBUTION OF THE GOLD AND SILVER PRODUCT OF IDAHO FOR THE CALENDAR YEAR 1903 AS TO SOURCES OF PRODUCTION.

Classification.	Quantity.
Gold:	<i>Fine ounces.</i>
Quartz.....	47,506
Placer.....	36,231
Silver:	
Quartz.....	872,811
Silver-lead ores.....	6,042,225

GOLD AND SILVER PRODUCED IN IDAHO DEPOSITED WITH GOVERNMENT INSTITUTIONS DURING THE CALENDAR YEAR 1903.

Mint and assay office.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Value.
Mints:	<i>Standard ozs.</i>		<i>Standard ozs.</i>	
San Francisco.....	887.089	\$16,503.98	205.26	\$238.84
Philadelphia.....	1,875.588	34,894.66	718.29	835.83
Denver.....	462.927	8,612.59	97.83	113.84
Assay offices:				
Boise.....	32,462.984	603,962.49	9,584.25	11,152.58
Helena.....	7,693.863	143,141.64	1,854.24	2,157.67
New York.....	113.716	2,115.65	80.34	93.48
Seattle.....	3,631.012	67,553.71	1,192.97	1,388.18
Total.....	47,127.179	876,784.72	13,733.18	15,980.42

SOURCES OF THE DEPOSITS AT THE UNITED STATES ASSAY OFFICE, BOISE, IDAHO, FOR THE CALENDAR YEAR 1903.

County and State.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Value.
	<i>Standard ozs.</i>		<i>Standard ozs.</i>	
Ada.....	175.865	\$3,271.91	42.96	\$49.99
Bannock.....	210.672	3,919.48	11.15	12.98
Bingham.....	140.952	2,622.36	16.63	19.35
Blaine.....	143.012	2,660.69	55.53	64.67
Boise.....	11,503.125	214,011.62	3,110.91	3,619.97
Canyon.....	342.561	6,373.23	8.58	9.98
Cassia.....	304.530	5,665.67	29.18	33.95
Custer.....	976.607	18,169.43	662.54	770.96
Elmore.....	4,102.903	76,333.08	2,119.69	2,466.55
Idaho.....	3,675.914	68,389.10	1,402.11	1,631.55
Lemhi.....	6,409.572	119,247.85	632.39	735.87
Lincoln.....	259.345	4,825.02	58.40	67.96
Oneida.....	388.703	7,231.69	59.53	69.27
Owyhee.....	512.436	9,533.69	456.50	531.20
Shoshone.....	2,550.945	47,459.44	874.68	1,017.81
Washington.....	765.842	14,248.23	43.42	50.52
Total.....	32,462.984	603,962.49	9,584.25	11,152.58
Montana.....	5,650.988	105,134.66	2,524.48	2,937.58
Nevada.....	810.095	15,071.54	374.67	435.98
Oregon.....	26,689.432	496,547.57	10,002.81	11,639.63
Washington.....	173.913	3,235.59	42.35	49.28
Grand total.....	65,787.412	1,223,951.85	22,528.56	26,215.05

MONTANA.

By B. H. TATEM,

Assayer in charge, United States assay office, Helena, Mont.

The State of Montana has added \$50,276,355 to the value of the visible supply of metals produced in the United States during the calendar year 1903. The quantity of each metal produced and the value thereof was as shown in the table below, the gold and silver being computed at the coining rate for each, and the copper and lead at the year's average price:

Metal.	Quantity.	Value.
Gold.....fine ounces..	222,066.236	\$4,590,516.31
Silver.....do.....	13,224,004.22	^a 17,097,702.43
Copper (\$13.235 per cwt.).....fine pounds..	213,076,628.00	28,200,691.72
Lead (\$4.237 per cwt.).....do.....	9,144,313.00	387,444.54
Total.....		50,276,355.00

^a Coining value.

A comparison of these figures with corresponding data for 1902 shows the following variations to have occurred:

Metal.	1902.		1903.		Increase (+) or decrease (-).
	Quantity.	Value.	Quantity.	Value.	
Gold.....fine ounces..	212,854	\$4,400,095	222,066	\$4,590,516	+ \$190,421
Silver.....do.....	13,629,737	^a 17,622,286	13,224,004	^a 17,097,702	- 524,584
Copper.....pounds..	211,646,640	24,606,038	213,076,628	28,200,692	+ 3,594,654
Lead.....do.....	8,177,629	332,748	9,144,313	387,445	+ 54,697
Total		46,961,167		50,276,355	+ 3,315,188

^a Coining value.

From the above comparative table it will be noted that the mining industry in the State of Montana is in a most attractive condition, the gain in the value of the production being some 7 per cent over the preceding year. The increased market prices paid for copper and lead stimulated the production of these metals and added largely to the very creditable showing made by the State for the year. The average price paid for electrolytic copper (the Montana product being of this kind) for the present year was \$13.235 and for the preceding year \$11.626, an increase of \$1.61 per hundredweight. The average price paid for lead during the year 1903 was \$4.237, and for the year 1902 \$4.069, a gain of 17 cents per hundredweight.

Mining, Montana's great industry, has made great progress during the year 1903, and the results obtained, both from development and productive standpoints, have far outstripped the record for the preceding year.

PRODUCTION OF GOLD AND SILVER IN MONTANA DURING THE CALENDAR YEAR 1903.

County, etc.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Beaverhead.....	3,099.473	\$64,071.79	154,919.39	\$200,299.82
Broadwater.....	3,958.546	81,830.40	61,940.29	80,084.41
Cascade.....	712.920	14,737.36	261,339.56	337,893.57
Choteau.....	3,412.940	70,551.73	5,892.90	7,619.10
Deerlodge.....	3,418.615	70,669.04	12,463.21	16,114.05
Fergus.....	54,734.690	1,131,466.46	12,010.39	15,528.58
Flathead.....	2,225.604	46,007.32	110,132.64	142,393.72
Granite.....	9,170.263	189,566.16	1,423,456.20	1,840,428.21
Jefferson.....	12,312.621	254,524.47	237,362.81	306,893.33
Lewis and Clarke.....	22,299.156	460,964.46	143,050.37	184,954.01
Madison.....	30,257.680	625,481.76	128,301.78	165,885.13
Meagher.....	400.520	8,279.48	88,008.38	113,788.61
Missoula.....	4,285.954	88,598.53	1,035.78	1,339.19
Park.....	9,992.864	206,570.83	3,359.53	4,343.63
Powell.....	3,372.344	69,712.53	20,396.43	26,371.14
Ravalli.....	766.490	15,844.75	2,193.50	2,836.04
Silverbow.....	48,800.775	1,008,801.55	9,811,544.69	12,685,633.54
Returns from custom smelters, mints, and assay offices, impossible to classify by counties.....	8,844.781	182,837.69	746,596.37	965,296.35
Total.....	222,066.236	4,590,516.31	13,224,004.22	17,097,702.43

The amounts of gold taken from placers and originating in milling, cyaniding, copper, lead, and smelting ores during 1903, when compared with the production for the previous year from the same classes of ores, show the following changes:

GOLD.

Classification.	1902.		1903.		Increase (+) or decrease (-).
	Quantity.	Value.	Quantity.	Value.	
	<i>Fine ounces.</i>		<i>Fine ounces.</i>		
Placer dust.....	21,625.833	\$447,045.65	23,289.982	\$481,416.65	+\$34,401.00
Mill bullion.....	50,402.081	1,041,903.46	50,013.110	1,033,862.74	- 8,040.72
Cyanide bullion.....	62,458.742	1,291,136.79	63,650.274	1,315,767.94	+ 24,631.15
From copper ores.....	52,304.118	1,081,222.08	60,995.134	1,260,881.12	+179,659.04
From lead ores.....	4,360.347	90,136.37	5,952.880	123,056.95	+ 33,920.58
From smelting ores.....	21,703.502	448,651.21	18,164.856	375,500.91	- 73,150.30
Total.....	212,854.623	4,400,095.56	222,066.236	4,590,516.31	+190,420.75

The search for the precious metals has ever been a spur to discovery and development from time immemorial. The gold taken from the placers of Montana amounted to 10.45 per cent of the total production and is a substantial increase over the preceding year. There are extensive deposits of auriferous gravel upon which large operations are contemplated, but the development of these require time, money, and intelligent and efficient supervision to bring them to economical and profitable production. The amount of the product recovered by the mills of the State about held its own for the year, the loss occasioned by the enforced idleness of one or two of the principal properties being about balanced by the product received from new producers.

Cyaniding has had a banner year in the State, and some 28.67 per

cent of the total gold product has been recovered by this process. The large mining enterprises situated in the different sections where cyanide is being used have been developed and have grown within a very few years, under a wise direction of capital and judicious management, to be prominent factors in the production of the yellow metal of this State.

Capital has never been wanting to undertake and push development after a practical investigation has proven the worth and merit of any prospect. The gold taken from the copper ores in 1903 shows a large increase over the preceding year, and was occasioned by the larger tonnages of the ores mined and a higher average value of this metal contained. The city of Butte, the center of this production, still continues to be the scene of great commercial and industrial activity. The gold recovered in connection with the mining of lead ores in the State also shows an increase for the year, and was stimulated by the increased demand and price paid for this metal.

The amounts of silver for the years 1902 and 1903, by origin, in the different classes of ore, were as follows:

SILVER.

Classification.	1902.		1903.		Increase (+) or decrease (-).
	Quantity.	Coining value.	Quantity.	Coining value.	
	<i>Fine ounces.</i>		<i>Fine ounces.</i>		
Placer dust	2, 416. 66	\$3, 124. 59	3, 033. 18	\$3, 921. 71	+ \$797. 12
Mill bullion	1, 130, 831. 30	1, 462, 083. 62	1, 401, 815. 81	1, 812, 448. 72	+350, 365. 10
Cyanides	166, 088. 00	214, 740. 04	119, 110. 53	154, 001. 49	- 60, 738. 55
In copper ores	9, 058, 715. 00	11, 712, 279. 26	8, 682, 542. 55	11, 225, 913. 60	-486, 365. 66
In lead ores	410, 737. 51	531, 054. 56	450, 302. 64	582, 209. 47	+ 51, 154. 91
In smelting ores	2, 860, 948. 33	3, 699, 003. 89	2, 567, 199. 51	3, 319, 207. 44	-379, 796. 45
Total	13, 629, 736. 80	17, 622, 285. 96	13, 224, 004. 22	17, 097, 702. 43	-524, 583. 53

The above table shows a decrease in the total output of silver for the year of some 400,000 ounces. The amount of silver obtained from the placer mines of the State is insignificant, this metal being associated with the gold as a by-product. This also applies to cyanide, less than 1 per cent of the total silver production of the year being recovered in connection with this process. The increase of silver from mill bullion was occasioned by a renewal of operations by mines in Granite and Cascade counties that for some time, on account of litigation and the low market price paid for this metal, had not been working at all or else their output was restricted. The diminished yields shown for copper and smelting ores was governed in great measure by a lower percentage of this metal contained in the ores mined and by local conditions within the State, which necessitated the closing down on several occasions of some of the prominent producers. The small increase shown for the lead ores mined is unimportant.

Copper is the paramount feature of the mining industry in Montana. More than 80 per cent of the total values in the State during the year 1903 came from the mines of Silver Bow County, around Butte, in the shape of gold, silver, copper, and some little lead. The effect on conditions, both local and general, is very important. While the number of men who find direct employment in mining and reducing copper ores reaches into the tens of thousands, it is no greater than the number indirectly benefited by the manufacture and sale of the

necessary supplies for these employees and for the mines. The cities of Butte, Anaconda, and Great Falls, Mont., having a combined population of more than 85,000, exist almost solely to minister to the industries connected with copper mining. But more important than is all this great advantage to the State of Montana and to the commercial life of the country is the effect on the industrial progress of the world. The maintained high price paid for copper throughout 1903 proves that the demand for this metal is genuine and the supply limited for immediate needs. This latter fact, too, is proved, in that while the production has constantly increased there has been no accumulation of public stocks, and shows that the industrial consumption of the metal has at least kept pace with the production. The mines of the State have made possible, with their output of copper, the expansion of the electrical industry, especially in installations for power transmissions, of shipbuilding, and of marine engineering, besides many other industries, among which are the manufacture of structural materials and conveniences for domestic and public use.

During the year just closed the prosperity of Butte, the largest mining camp of the State, was interrupted on two different occasions. The first was the closing down of some of the principal producers, early in July, to permit of the finishing and connecting the new flue and stack of the Washoe smelter at Anaconda. An idea of the magnitude of this work may be obtained from the following statement of the quantities of excavating necessary and materials used in its construction: Excavation, 111,163 cubic yards; brick used, 14,188,000; steel used, 1,896.95 tons; cement, 9,122 barrels. The construction work was started early in February and completed September 11, 1903.

The second interruption during the year to the mining industry at Butte, Mont., was caused by unfortunate mining litigation which caused a cessation of work at the mines and smelters of the Amalgamated Company, from October 22 to November 11, 1903, and was remedied by measures passed by the legislature of the State, which was called and assembled in special session at Helena, the capital city, December 1, 1903.

A new smelting plant was completed by the Pittsburg and Montana Company at Butte during the year, and extensive improvements were also made at the plants of the Butte Reduction Works at Butte, the concentrator of the United Copper Company at Basin, and the plant of the American Smelting and Refining Company at East Helena, Mont.

There was much activity in mining circles in Jefferson County during 1903, the districts around Corbin, Jefferson, and Wickes, on the line of the Great Northern Railroad, being given particular attention. A number of new companies have acquired property in this section and are vigorously prosecuting a search for large bodies of copper ore, which are known to exist somewhere in this vicinity. The district is highly mineralized and copper stained, several rich leads have been uncovered, and with intelligent and energetic development the coming year will undoubtedly give to the State some new copper producers in Jefferson County. A new smelting plant is being constructed in this county by the Cataract Copper Mining Company, and will be completed early in 1904.

The leading gold producer of Jefferson County is the property owned and operated by the Big Indian Mining Company. The ore at this mine is mined by the open cut and chute system, and is handled

altogether by gravity, being treated in a 60-stamp amalgamating mill of 180 tons daily capacity. Practically all the values in the ore are saved over the two sets of amalgamating plates. The mill is equipped with all the latest devices and is operated by electricity, power being secured from the plant of the Missouri River Power Company, located at Canyon Ferry, some 23 miles distant. The three-phase alternating current is received at 11,500 volts and transformed at the mill to 440 volts. The very limited water supply available for mill purposes until the installation of the present settling-tank system for reusing the mill-plate water, was perhaps the greatest obstacle to the making of the property. The company's capable manager showed no little ingenuity in devising the system which now provides for the maintenance of an adequate water supply by the settling-tank system. This system, which has proven a success by a practical test, should be of particular interest to operators who have to contend with shortages of water. The initial water supply for this property is from a small creek above the mill, and proved totally inadequate for the 60-stamp mill, hence a system of settling tanks, into which is conducted the mill tailings and plate water, was installed. Situated in the mill is a tank of 18,000 gallons capacity, and the supply of water is piped and pumped into this tank. The settling-tank house, located some distance from the mill, is provided with six 60,000-gallon settling tanks and with two sump tanks, each of 7,000 gallons capacity. The refuse water and tailings from the mill plates is drawn off from the mill to these settling tanks and allowed to settle anywhere from eighteen to twenty-four hours. The clear water is then drawn off into the sump tanks and the settling tanks sluiced out with a hose once in every twenty-four hours. The sluice gates in the bottom of the settling tanks are opened and closed by means of iron rods and brakes at the tops of the tanks. From these sump tanks the clear water is pumped back to the supply tank at the mill for reuse. At the tailings dam there is a second settling and the clear water is also pumped back to the supply tank at the mill. As only one settling tank is sluiced out at any one time there can always be kept in readiness the remaining five tanks as a reserve supply. One man on a shift looks after the settling tanks and the electric pump at the settling-tank house.

Fergus County contributed to the value of the mineral product of the State some \$1,146,995.04 during the year 1903. The Kendall Gold Mining Company and the Barnes-King Group, at Kendall, and the Gold Reef Mining Company, at Gilt Edge, all continued to produce during the year as previously and have a visible supply of ore for a long time to come. An interesting feature at the last named property is the great body of unoxidized ore, which, after roasting, is amenable to the cyanide process. For the following report, which bears on this, I am indebted to the superintendent of the property, Mr. J. H. McCormick:

The property of the Gold Reef Mining Company is located on the east slope of the Judith Mountains, Warm Springs mining district, about 1 mile west of the town of Gilt Edge, Mont., and consists of 27 patented claims.

The present company came into possession of the property in October, 1902, by purchase from the Great Northern Mining and Development Company, which carried on the most extensive operation in its history, and built the present cyanide plant.

The country rock in the vicinity is a carboniferous limestone and the ore body occurs at the lower contact of an intrusive sheet of porphyry and the limestone, the general strike being north and south and the dip 30° northeast, the dip being in conformity

with that of the underlying carboniferous limestone. At the Storm King claim, the overlying porphyry is entirely eroded away, so that the ore has been mined by open cutting. Up to date the values have been obtained principally from the oxidized ore and in the upper and older workings from the auriferous porphyry. The oxidized limestone is a typical cyaniding ore, containing no base metals or rebellious constituents. Silver and mercury are present, but not in sufficient quantities to be determined by ordinary methods. The gold can not be concentrated by any known method, and no matter how high the grade it will not pan a color.

The present ore body of unoxidized black ore underlies the previously mined oxidized ore. The oxidized ore requires a solution of less than 1 per cent in cyanide, and the consumption of cyanide per ton of ore treated is about 0.25 pound.

The black ore will not yield up its values directly to cyanide, but requires roasting. Personally, I conducted a series of tests on several hundred tons at the property during the fall of 1902.

An experimental plant, consisting of a hand-rubble hearth furnace 5 by 20 feet, was constructed, and a leaching plant of three 5-ton tanks, 6 feet 8 inches deep (the same depth as the tanks at the mill), also the necessary solution tanks and the zinc boxes.

A number of preliminary tests were made, which demonstrated that equally good results were obtained by roasting the ore crushed to one-quarter inch mesh, as when crushed finer; so the most of the charges were of that mesh, and as that is the mesh used in crushing the oxidized ore, it was a favorable feature, since it would allow using the same crushing and screening plant throughout for both oxidized and unoxidized ore; and, as above mentioned, the oxidized ore overlies the black ore, they can be mined at the same time and be sent to the mill separately and crushed ready for treatment much cheaper than if separate sizing was necessary.

The oxidized ores are given a fair rate of leaching, the roasted a very high one, and as the two will be mixed in going to the leaching plants the mixture will give a very satisfactory rate for leaching.

This ore does not require a high heat, and the ideal roast is obtained by keeping it at an incipient red heat for about two and one-half hours in the presence of abundance of air, which means frequent and thorough agitating. The raw ore carries on an average 1.27 per cent of sulphur, and after roasting 0.75 per cent, of which 0.634 per cent is water soluble.

The ore can be roasted at from 800° F. to 900° F. in a prolonged period, but more practical results are obtained at from 1,000° F. to 3,000° F., the maximum being 1,400°, at which the lime in the ore is changed to quicklime, which is prohibitive on account of the slacking and packing of the charge interfering with the leaching. The average weight of the ore at a quarter mesh charged into the tanks is: Oxidized ore 78 pounds, black ore 87 pounds, per cubic foot.

The main ore body is reached by a mill tunnel which nearly parallels the ore above, being about 100 feet lower at the mouth and intersecting it at its northern end. Ore is run to the tunnel level by chutes, or at the north end by two gravity inclines. Ore has been found and is being developed near the north end by a 185-foot winze, which appears to show a fault of the ore body.

The Stand-by workings are about 1,800 feet west of the mill tunnel and are 350 feet higher, ore being run by a line chute to a tunnel 1,600 feet long, which branches from the mill tunnel 600 feet from its mouth.

The surface plant, in addition to the 300-ton cyanide plant and the Brown straight-line roaster (which is now in operation), consists of a 10-drill Rand compressor, a large Corliss engine, and a battery of four boilers. An ample water supply is now obtained by a 3-mile wooden pipe line, 5 inches in diameter, from Whisky Gulch.

An innovation in prospecting in this district has been introduced in a Diamond drill lately installed.

The Chicago-Montana Mining Company has renovated the old Whisky Gulch mill and has acquired the Big Six Group. Large bodies of cyaniding ore are blocked out in the McEveny Claim, from which a tramway 3,900 feet in length leads to the mill.

The Montana Railroad, which was completed into Lewistown—the county seat—during the year, will give additional impetus to the mining industry in this section of the State and it is expected will lead to the development of smelting ores which have not been much sought after until now, owing to the cost of transportation. Already there are some promising copper prospects.

Among the interesting features of the Montana State fair, held during the month of October, 1903, at the capital city of Helena, was a very creditable display of samples of the ores and other minerals, the resources of the State.

Numbers of new prospects are being systematically developed in all parts of the State, and several of the celebrated mines in times past are taking on new life and energy and promise to again take their places among the producers and help swell the production of precious metals for the coming year. Prominent among these may be mentioned the Jay Gould, at Gould; the Liverpool, near Clancy; the Whitlach-Union, at Unionville, and the Kearsarge, in Madison County.

The statistical tables of the Montana production for the year 1903, that appear in connection with this review, showing the quantity and value of the production of the State, its origin by counties and classes, together with the final disposition of the ores for treatment and sale, have been compiled from confidential returns, furnished by the producers of their outputs, and the totals thus obtained are verified by the statistics of the United States mints and assay offices, and by the summaries furnished from the records of the smelters, refineries, and sales agents.

DEPOSITS AT THE UNITED STATES ASSAY OFFICE, HELENA, MONT., DURING THE CALENDAR YEAR 1903.

Source.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Commercial value.
Montana:	<i>Standard ounces.</i>		<i>Standard ounces.</i>	
Beaverhead County.....	1,580.359	\$29,401.99	333.51	\$158.03
Deer Lodge County.....	3,465.127	64,467.42	514.68	239.31
Broadwater County.....	802.557	14,931.28	105.76	49.91
Fergus County.....	55,072.990	1,024,613.67	2,133.77	994.89
Flathead County.....	984.004	18,307.04	147.38	66.45
Granite County.....	3,615.464	67,264.41	656.95	303.16
Jefferson County.....	2,142.245	39,855.67	356.67	163.35
Lewis and Clarke County.....	12,437.823	231,404.24	5,606.74	2,571.55
Madison County.....	14,994.047	278,955.88	2,517.89	1,189.52
Meagher County.....	167.245	3,111.54	9.31	4.45
Missoula County.....	3,095.504	57,590.72	150.86	72.08
Park County.....	8,880.960	165,227.17	2,621.69	1,240.73
Powell County.....	3,232.604	60,141.43	440.47	208.95
Ravalli County.....	518.323	9,643.20	35.00	16.58
Silver Bow County.....	1,144.669	21,296.16	272.37	127.35
Total.....	112,133.921	2,086,211.82	15,903.05	7,406.31
Idaho.....	7,693.863	143,141.57	1,854.24	852.74
Mexico.....	11.281	209.88	10.57	4.76
Nevada.....	3,907.355	72,694.99	1,494.51	698.12
Washington.....	1,892.226	35,204.18	743.27	353.38
British Columbia.....	11,346.314	211,094.19	8,387.60	3,934.06
Northwest Territory.....	134.116	2,495.18	51.60	23.73
Jewelry.....	111.709	2,078.30	30.43	14.09
Grand total.....	137,230.785	2,553,130.11	28,475.27	13,287.19

BULLION OF MONTANA PRODUCTION DEPOSITED AT THE UNITED STATES ASSAY OFFICE,
HELENA, MONT., DURING THE CALENDAR YEAR 1903.

Origin.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Commercial value.
	<i>Standard ounces.</i>		<i>Standard ounces.</i>	
Placer dust	25,877.757	\$481,446.25	3,370.20	\$1,605.65
Mill bullion.....	86,256.164	1,604,765.57	12,532.85	5,800.66
Total.....	112,133.921	2,086,211.82	15,903.05	7,406.31

BULLION OF MONTANA PRODUCTION DEPOSITED AT THE UNITED STATES MINTS AND
ASSAY OFFICES DURING THE CALENDAR YEAR 1903.

Institution.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Standard oz.</i>		<i>Standard oz.</i>	
Mints:				
Philadelphia.....	3,024.954	\$56,278.21	142.18	\$165.45
San Francisco.....	123.625	2,300.00	7.29	8.48
Assay offices:				
Boise.....	5,650.988	105,134.66	2,524.48	2,937.57
Denver	9.299	173.00	.89	1.04
Helena.....	137,230.785	2,553,130.11	28,475.27	33,134.86
New York.....	3,246.088	60,392.33	7,621.44	8,868.60
Seattle.....	9,996.561	185,982.53	115.36	134.23
St. Louis.....	392.984	7,311.33	117.10	136.26
Total.....	159,675.284	2,970,702.17	39,004.01	45,386.49

PRODUCTION OF GOLD AND SILVER IN MONTANA (ORIGIN DETAILED) DURING THE
CALENDAR YEAR 1903.

Origin.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Placer dust	23,289.982	\$481,446.65	3,033.18	\$3,921.71
Mill bullion.....	50,013.110	1,033,862.74	1,401,815.81	1,812,448.72
Cyanide bullion	63,650.274	1,315,767.94	119,110.53	154,001.49
In copper ores	60,995.124	1,260,881.12	8,682,542.55	11,225,913.60
In lead ores.....	5,952.880	123,056.95	450,302.64	582,209.47
In dry ores and concentrates classed as smelting ores	18,164.856	375,500.91	2,567,199.51	3,319,207.44
Total.....	222,066.226	4,590,516.31	13,224,004.22	17,097,702.43

ORIGIN BY PERCENTAGES OF THE PRODUCTION OF GOLD AND SILVER IN MONTANA DURING
THE CALENDAR YEAR 1903.

Origin.	Gold.	Silver.
	<i>Per cent.</i>	<i>Per cent.</i>
Placer dust	10.45	0.03
Mill bullion.....	22.53	10.61
Cyanide bullion.....	28.67	.88
In copper ores	27.48	65.66
In lead ores.....	2.68	3.40
In dry ores.....	8.19	19.42
Total.....	100.00	100.00

PRODUCTION OF COPPER AND LEAD IN MONTANA DURING THE CALENDAR YEAR 1903.

SUMMARY BY COUNTIES.

County, etc.	Copper.	Lead.
	<i>Fine pounds.</i>	<i>Fine pounds.</i>
Beaverhead.....	115,755	506,540
Broadwater.....		939,343
Cascade.....		912,271
Flathead.....		4,000,000
Granite.....	15,500	48,709
Jefferson.....	245,000	329,971
Lewis and Clarke.....	27,500	72,969
Madison.....		79,613
Meagher.....	6,200	630,000
Ravalli.....		28,068
Silver Bow.....	210,933,785	209,500
Custom smelters in addition to the above not possible to classify by counties.	1,732,888	1,387,329
Total.....	213,076,628	9,144,313

DISPOSITION OF THE GOLD AND SILVER OF MONTANA PRODUCTION DURING THE CAL-
ENDAR YEAR 1903.

Disposition.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Deposited at the United States mints and assay offices.....	143,707.756	\$2,970,702.17	35,103.61	\$45,386.49
Shipped to custom smelters and refineries by producers.....	78,358.480	1,619,814.14	13,188,900.61	17,052,315.94
Total.....	222,066.236	4,590,516.31	13,224,004.22	17,097,702.43

PRODUCTION OF GOLD, SILVER, COPPER, AND LEAD IN THE STATE OF MONTANA FROM
THE YEAR 1862 TO 1903 (INCLUSIVE).

Year.	Gold.	Silver. ^a	Copper.	Lead.	Total.	Increase (+) or de- crease (-).
						<i>Per cent.</i>
1862 to 1881 (in- clusive) ^b	\$200,000,000	\$11,000,000			\$211,000,000	
1882.....	2,550,000	4,370,000	\$1,539,860		8,459,860	
1883.....	1,800,000	6,000,000	3,452,960	\$226,424	11,479,384	+37½
1884.....	2,170,000	7,000,000	5,386,500	246,326	14,802,826	+31
1885.....	3,400,000	11,500,000	6,779,800	274,350	21,954,150	+50
1886.....	4,422,000	13,849,000	5,761,200	494,132	24,526,332	+12
1887.....	5,978,536	17,817,548	8,853,750	607,662	33,257,496	+33½
1888.....	4,200,253	15,790,736	15,103,946	569,160	35,664,095	+7½
1889.....	3,500,000	19,393,939	13,334,970	456,975	36,685,884	+3
1890.....	3,300,000	20,363,636	16,656,437	675,392	40,995,465	+11½
1891.....	2,890,000	20,139,394	11,377,336	1,229,027	38,635,757	+5½
1892.....	2,891,386	22,432,323	19,105,464	990,035	45,419,208	+18
1893.....	3,576,000	21,858,780	16,630,958	964,089	43,029,827	-5
1894.....	3,651,410	16,575,458	17,233,718	730,551	38,191,137	-11
1895.....	4,327,040	22,886,992	21,114,869	754,360	49,083,261	+28½
1896.....	4,380,671	20,324,877	25,356,541	670,010	50,732,099	+3½
1897.....	4,496,431	21,730,710	26,798,915	928,619	53,954,675	+6
1898.....	5,247,913	19,159,482	26,102,616	809,056	51,319,067	-5
1899.....	4,819,157	21,786,835	40,941,906	909,410	68,457,308	+33
1900.....	4,736,225	18,482,211	39,827,135	701,156	63,746,727	-7
1901.....	4,802,717	18,334,443	36,751,837	498,622	60,387,619	-5
1902.....	4,400,095	17,622,285	24,606,038	332,749	46,961,167	-22
1903.....	4,590,516	17,097,702	28,200,692	387,445	50,276,355	+7
Total.....	286,130,350	385,516,351	413,917,448	13,455,550	1,099,019,699	

^aCoining value.

^bNo annual compilations were made prior to 1881.

NEVADA.

By R. K. COLCORD,

Assayer in charge of the United States mint, Carson City, Nev.

Gold	\$3, 642, 180. 77
Silver (coining value)	6, 661, 296. 46
Lead (\$0.04 per pound)	226, 857. 56

The above figures give Nevada's production for the calendar year 1903 and show a satisfactory increase over the previous year.

The work of collecting these statistics has been more difficult than heretofore, for the reason that some of the larger producers have failed to report direct, and the assessors' returns are incomplete and not wholly reliable. Owing to the renewed activity in mining throughout the State, there have been considerable quantities of gold and silver bullion shipped by small companies and individuals from whom no reports have been received. For several years the De Lamar Company, operating in Lincoln County, has been the largest gold producer in the State, and it has always reported to us; and we also have received the report from the New York assay office, where it shipped its product. Since the recent sale of these mines their product has not gone to the New York assay office, and no report has been received by us, though we have learned through other channels the approximate production of these mines. The American Smelting and Refining Company of Salt Lake report having received no bullion during the year 1903 from Nevada. Notwithstanding this, several mining companies, large producers, have reported to us that their ores had been shipped to that institution. It is doubtless true that they received no bullion, but they must have handled large quantities of ores.

NYE COUNTY.

The Tonopah mining district, in Nye County, continues to eclipse all other counties as a bullion producer, having materially increased its output over that of 1902, though as yet mostly through the shipment of high-grade ores. There has been one mill of 50 tons capacity erected at the mines, but not completed until January of this year. A narrow-gauge railroad is now under construction from the Carson and Colorado Railway to the town of Tonopah, which will be in operation about June 1 of the present year. This will materially lessen the cost of transportation, and it is more than probable that most of the higher grade ores will continue to be shipped to the smelters, as it is not free milling ore. The developments in the original Tonopah mine during the year demonstrate the fact that it is very rich and very extensive, and bids fair to rival some of the famous Comstock mines. This year's developments tend to show that there are other mines in the district showing up equally well, one of which is already paying dividends.

ESMERALDA COUNTY.

At Goldfields, 28 miles from Tonopah, in Esmeralda County, many new discoveries of free-milling gold-bearing ledges have been made. The district appears to be quite extensive, the veins large and well defined, carrying rich ore in streaks and bunches. The output from Esmeralda County shows a marked improvement over previous years, and as there are a number of companies starting operations there it will no doubt again become a large gold producer.

STOREY COUNTY.

The mines of the Comstock lode are being operated much more extensively than for some years past, with flattering results in the shape of dividends. New ground is being explored below the Sutro tunnel level, and some new and extensive bodies of good milling ore have been discovered. The bullion output was greater than that of 1902, with a fair prospect of continued improvement.

LINCOLN COUNTY.

This county shows a substantial improvement in her bullion product over that of the previous year. The De Lamar continues to be the chief producer, but there are a number of new mines being opened, some of which are producing bullion, among which may be mentioned the mines of Searchlight, which have been greatly hampered on account of a prolonged labor strike.

EUREKA COUNTY.

The mines of this county continue to yield the usual quantity of silver-lead ores, nearly all of which are shipped out of the State to the smelters. The figures for the present year show a slight increase over those of 1902.

ELKO COUNTY.

My reports from this county are incomplete and unsatisfactory. The figures from all sources show a falling off of nearly \$100,000, which, from my knowledge of the situation, would appear to be considerably less than the county is entitled to.

LANDER AND HUMBOLDT COUNTIES.

These counties have each slightly increased their output over that of 1902.

LYON COUNTY.

The principal mines of this county are at Silver City, and they have been steady producers for forty years with but very little variation in their output from year to year.

WASHOE COUNTY.

The Olinghouse district in this county has increased its gold output during the year; but the Wedekind mine, near Reno, has not been as productive as heretofore.

WHITE PINE COUNTY.

Much is expected of this extensive mineral territory when the new railroad has been completed. Many sales of mining property have been made recently, and extensive operations have already been inaugurated in some of the old mines, and many new locations have been made.

THE OTHER COUNTIES.

As will be seen by the following table of comparison, the total production of the year 1903 shows quite an increase. All the counties have produced some gold and silver bullion.

Metal.	1900.	1901.	1902.	1903.
Gold	\$2, 023, 803	\$3, 099, 568	\$2, 996, 749	\$3, 642, 180
Silver (coining value).....	1, 931, 075	2, 613, 826	5, 169, 627	6, 661, 296
Total.....	3, 954, 878	5, 713, 394	8, 166, 376	10, 303, 476

PRODUCTION OF GOLD AND SILVER IN NEVADA DURING THE CALENDAR YEAR 1903.

County.	Gold.	Silver. ^a	Total.
Churchill.....	\$5, 600. 00	\$8, 145. 29	\$13, 745. 29
Douglas	1, 015. 74	26, 10	1, 041. 84
Elko.....	200, 149. 75	210, 434. 16	410, 583. 91
Esmeralda.....	180, 573. 44	174, 253. 99	354, 827. 43
Eureka	92, 198. 72	565, 333. 63	657, 532. 35
Humboldt.....	70, 695. 43	82, 105. 83	152, 801. 26
Lander	81, 550. 16	152, 327. 14	233, 877. 30
Lincoln.....	926, 789. 89	210, 423. 62	1, 137, 213. 51
Lyon	154, 014. 03	142, 617. 25	296, 631. 28
Nye.....	1, 162, 346. 33	4, 482, 904. 73	5, 645, 251. 06
Ormsby.....	11, 219. 65	44, 887. 23	56, 106. 88
Storey	506, 009. 24	418, 997. 16	925, 006. 40
Washoe.....	85, 128. 15	75, 223. 67	160, 351. 82
White Pine.....	164, 890. 24	93, 616. 66	258, 506. 90
Total	3, 642, 180. 77	6, 661, 296. 46	10, 303, 477. 23

^aCoinage value.

SOURCE OF PRODUCTION.

Source.	Gold.		Silver.	
	Weight.	Value.	Weight.	Value.
	<i>Standard ounces.</i>		<i>Standard ounces.</i>	
Placer.....	1, 720, 343	\$32, 006. 38		
Quartz	195, 121, 873	3, 630, 174. 39	5, 724, 042. 46	\$6, 660, 495. 82
Silver-lead ores			516. 19	600. 64
Total.....	196, 842, 216	3, 662, 180. 77	5, 724, 558. 65	6, 661, 096. 46

NEW MEXICO.

By F. A. JONES, C. E., E. M., LL. D.,

Field assistant of United States Geological Survey, Albuquerque, N. Mex.

The value of the metallic products (excepting iron ore) of New Mexico for the year 1903, consisting of gold, silver, copper, lead, and zinc, was \$1,769,210, as given in the following table:

Metal.	Quantity.	Value.
Gold.....line ounces..	13,042.75	\$269,613
Silver (at \$0.5357) .....do.....	201,956.00	108,184
Copper ^a.....pounds..	7,637,425.00	1,010,812
Lead (at \$4.237 per cwt.) .....do.....	6,616,954.00	280,361
Zinc (at \$5.40 per cwt.).....do.....	1,856,297.00	100,240
Total.....		1,769,210

^a Electrolytic, at \$0.13235 per pound.

The distribution of production and results in the various counties of New Mexico are given in the following tabulation:

LODE OR DEEP MINES.

County.	Ore mined, 1903.	Ore sold or treated, 1903.	Stock of ore on hand.	
			Dec. 31, 1902.	Dec. 31, 1903.
	<i>Short tons.</i>	<i>Short tons.</i>	<i>Short tons.</i>	<i>Short tons.</i>
Bernalillo.....	84	54	500	530
Colfax	36	36	50	50
Donna Ana	4,475	3,560	4,505	5,420
Grant	51,738	42,872	15,487	24,353
Lincoln	16,245	4,423	3,359	15,181
Luna	2,996	2,068	4,987	5,915
Otero	5,509	3,051	5,320	7,778
Rio Arriba	2,236		4,010	6,246
Sandoval	125	100	2,125	2,150
San Miguel.....	1,100	470	3,000	3,630
Santa Fe.....	158	48	41	151
Sierra	3,196	653	3,365	5,908
Socorro	23,937	16,800	7,135	14,272
Taos	6,287	620	10,747	16,414
Total.....	118,122	74,755	64,631	107,998

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Bernalillo.....	10.50	\$217	269	\$144
Colfax	7.44	154	2	1
Donna Ana			9,671	5,180
Grant	4,180.30	86,413	89,763	18,085
Lincoln	2,181.00	45,085	301	161
Luna			6,168	3,304
Otero	138.00	2,852	285	151
Rio Arriba				
Sandoval	102.00	2,109	930	498
San Miguel.....	40.00	827	799	428
Santa Fe.....	20.00	414	183	98
Sierra	6.53	135	7,500	4,018
Socorro	717.98	14,841	84,805	45,430
Taos	95.00	1,964	1,280	686
Total.....	7,498.75	155,011	201,956	108,184

PLACERS (GOLD).

County.	Quantity.	Value.
	<i>Fine ounces.</i>	
Colfax	4,754	\$98,273
Grant	152	3,142
Lincoln	66	1,364
Otero	3	62
Rio Arriba	7	145
Santa Fe	150	3,100
Sierra	312	6,449
Taos	100	2,067
Total.....	5,544	114,602

SOURCE OF PRODUCT.

Metal.	Quantity.	Value.
Gold:	<i>Fine ounces.</i>	
From lode mines.....	7,498.75	\$155,011
From placers.....	5,544.00	114,602
Total.....	13,042.75	269,613
Silver:		
From quartz	12,349.00	6,614
From copper ores	85,365.00	45,728
From lead ores.....	104,242.00	55,842
Total.....	201,956.00	108,184

BERNALILLO COUNTY.

In 1901 Bernalillo County ranked first in production of gold in the Territory of New Mexico; at present it stands near the foot of the list of producing counties. The reason of this falling off in production is not difficult to explain, since Sandoval County was created by an act of the legislature in 1903, and was carved from the northern portion of Bernalillo.

Sandoval County now embraces the Cochiti mining district, which, during the years 1901-2 was the largest gold-producing lode district in New Mexico. The celebrated Albemarle mine, at that time, was being operated.

Bernalillo County is now the smallest county in New Mexico, by reason of the creation of Sandoval and Torrance counties, both of which mainly acquired their territory from Bernalillo.

The Sandia Mountains, lying immediately east of Albuquerque a few miles, constitute the only remaining region for mining in Bernalillo County. This range, though more or less mineralized, has produced but little metallic values. Some copper prospects, lying immediately south of Tijeras Canyon, are quite promising and may soon become producers.

COLFAX COUNTY.

This county continues to head the list in placer gold, producing in 1903 slightly more than 42.5 per cent of the gold of the Territory. The gold comes from the slopes of Elizabeth Peak (Baldy Mountain), and is found in the streams and bars of the Ponil, Ute Creek, Willow

Creek, and the Moreno River at and below Elizabethtown. In fact, gold is found in all of the gulches that surround Baldy Mountain, and is evidently the accumulations from the auriferous lodes which have disintegrated in past ages.

In the Moreno River, about a mile below Elizabethtown, the big dredge of the Oro Dredging Company operates; this single machine produced one-third of the gold of New Mexico during the year 1903.

Mining conditions in Colfax County are practically at a standstill. Placer operations seem to be the only mining that ever paid in this county, with but few exceptions.

DONNA ANA COUNTY.

In the early part of 1903 mining in the Organ Mountains, near the San Augustine Pass, was quite active. The Torpedo mine, a copper proposition, and the Modoc lead property were the principal places of operation. Work was suspended on the Torpedo in the early fall, due to the inability of keeping the mine from watering. The pumps in use were inadequate for the occasion. The great supply of water is a most serious and expensive obstacle to overcome in working the property.

A 50-ton concentrating plant with Wilfley tables is now being completed at the noted Stephenson-Bennett lead mine. The management of this latter property seems to be exercising good judgment and have opened up and piled on the dump several thousand tons of concentrating galena ore. This mine is among the oldest and best known in New Mexico, it having been worked since 1847, originally for the silver values.

The Organ district is the best mining section in Donna Ana County, so far as known at the present time.

GRANT COUNTY.

Grant County still retains its place as being the banner county in the production of metallic wealth of the Territory.

Near the post-office of Central, in Gold Gulch, a very rich gold strike was made during the summer of 1903. Great excitement prevailed and all the surrounding country was immediately staked off. The ore is a heavy sulphide of zinc and iron, carrying unusually high values in gold. The ore bodies appear to be small and incline to pinch out; the original pockets of ore seemed to be the largest and best so far discovered. Excitement now has entirely subsided and the Gold Gulch Mining Company is at work developing the Pactolus and Owl claims, on which the first strike was first made.

Some of the properties of the Hearst estate, at Pinos Altos, are worked under a lease to good advantage, and are proving to be of considerable merit. The Shamrock Mining, Milling, and Smelting Company was organized and put in operation by renovating the old smelter at the famous Silver Cell mine, near Pinos Altos, and worked the greater part of the past season.

Much activity in the Burro Mountains is now going on, due to the exploiting of the large bodies of low-grade copper ores and the turquoise mines, which abound in that region; good results are predicted for 1904.

The Granite Gap mine, in the southwest part of the county, have

broken their former record by producing 4,000,000 pounds of lead-silver bullion; this property now ranks as the leading lead producer in the Southwest.

Indications point to a general revival in mining in all the camps in Grant County during the season of 1904. The Silver City Reduction Works, which burned in 1901, is being rebuilt by the Comanche Mining and Smelting Company, and another plant, known as the Ben Johnson smelter, is about ready to be blown in.

LINCOLN COUNTY.

Mining appears to be rather inactive in the celebrated gold camp of White Oaks; litigation seems to be the chief cause of this state of affairs. The Old Abe mine is about the only property that was operated during 1903. This mine has attained a depth of 1,375 feet, the deepest mine in New Mexico, and also bears the distinction of being the deepest dry mine in the world.

North of White Oaks, in the Jicarilla camp, there seems to be a recent revival in mining, due to the proposed erection of a large concentrating plant to handle the low-grade ores of the district.

Work has been continued in a moderate way during the season at the American and Helen Rae mines, at Nogal, by the American Mining and Milling Company, with some degree of success. On the whole, the season of 1903 was quite dull in mining in Lincoln County.

LUNA COUNTY.

Luna County made a very good showing and gives an increased production in lead, nearly doubling the output of the year previous.

Cooks Peak is the lead section of the county, while the Florida and Victoria mountains have long been noted for rich values in silver. Steps have been taken toward the erection of a smelter at Deming, in the near future.

OTERO COUNTY.

Only one camp of prominence exists in this county at the present time, and is known as the Jarilla camp, or district.

Much development has been done on the properties of the Three Bears Mining Company. At a depth of about 400 feet several live frogs, devoid of sight, were encountered. This would indicate that water level was about reached and it is expected that pay copper ore is near at hand, since the vein matter has been well leached of its metallic values above the lowest working. On the placer property of the Electric Mining and Milling Company and the Nannie Baird mine much improvement has been planned for 1904.

RIO ARRIBA COUNTY.

More activity was manifested in this county during the latter part of 1903 than at any other since its discovery, more than twenty years ago. Bromide and Headstone are the two principal districts.

The ore is generally a very low grade and occurs in schistose formations of, perhaps, Algonkian age. Copper, gold, and silver occur in the metallic sulphides. In the Tampa mine, in the Bromide district,

assays frequently show good values in platinum; this is the only place in New Mexico where this rare metal is actually known to exist.

At the Jaw Bone mine, near Hopewell, prospecting was conducted in a satisfactory manner with the diamond drill.

No ores were shipped or treated in the county during 1903. The latter part of the season of 1903, a complete hydraulic plant to work some placer grounds near the Hopewell post-office was installed; the success of this enterprise wholly depends on an adequate supply of water in the early spring. Water has always been lacking in the successful operation of hydraulicking these placers.

SANDOVAL COUNTY.

As previously stated, under the caption of Bernalillo County, Sandoval County was created mostly out of Bernalillo territory, in the early part of 1903.

The principal mining district in this county is Cochiti; the predominating ore is a hard bluish-white quartz carrying gold and silver values. The district seems to have enormous bodies of low-grade ore, and it is only a matter of a short time when the region will recover to its old-time prosperity.

SAN MIGUEL COUNTY.

The large low-grade bodies of copper ores which exist in the sandstone formations near Las Vegas appear to be the most conspicuous and valuable mineral deposits yet found in San Miguel County. Leaching seems to be the process by which the copper values can be most economically saved. A leaching plant was recently erected in the city of Las Vegas, and was operated only a very short time when it suspended operations and is now being removed to the place where the ore is mined, since it was found to be too expensive to transport the ore to the mill. It is understood that another leaching plant is being installed at one of the other properties in this region.

SANTA FE COUNTY.

The year 1903 was unusually quiet in mining in Santa Fe County. Scarcity of water prevented extensive operations in placer mining at Golden, San Pedro, and Dolores. The suspension of the Cerrillos smelter had a tendency to decrease materially the mining activity that was manifested the year before.

SIERRA COUNTY.

Much excitement existed over the discovery of rich placer dirt in Apache Cañon, in the Caballo Mountains, the latter part of November, 1903. Whilst the area of the pay dirt seems much circumscribed the district, nevertheless, will add materially to the gold output of the county for 1904.

At Slapjack Hill, near Hillsboro, the placer production is virtually the same as in 1902. The lode mines at this point remained inactive throughout the year.

The silver camps of Kingston, Lake Valley, and Tierra Blanca have been unusually quiet. Development at the Palomas Chief and New Era, in the Black Range, was not attended with the success which was expected by the operators. Owing to the great distance of the Black Range from transportation it seems almost out of the question to work mines profitably in that remote region.

SOCORRO COUNTY.

Next to Grant County, Socorro take its place in the ranks of production. The falling off in the lead product of recent years in the Magdalena Mountains seems destined to be compensated by the uncovering of large bodies of zinc ore (smithsonite).

At Rosedale but little activity is shown. The Rosedale mine lay idle the greater part of 1903.

One of the best mining sections in New Mexico is in the Mogollon Mountains, in the extreme western part of Socorro County.

OKLAHOMA.

REPORTED GOLD DEPOSITS OF THE WICHITA MOUNTAINS.

By H. FOSTER BAIN.

[Senate Document No. 149, Fifty-eighth Congress, second session.]

The Wichita Mountains occupy portions of Caddo, Comanche, Kiowa, and Green counties, Okla., and for the most part are within the area formerly known as the Kiowa-Comanche Reservation, which was opened for settlement in 1901. They consist of a core of crystalline rocks, including granite, gabbro, porphyry, and certain greenstone dikes, the whole partially encircled by a fringe of Paleozoic limestones. The gabbro and porphyry are pre-Cambrian. The granite and the dikes, which include certain rare and petrographically interesting types, are eruptive through the older crystallines, but their relations to the sedimentaries are not certain. Mr. Taff, who made a reconnaissance map of the region in 1901, correlates the granite with a pre-Cambrian granite of the Arbuckle Mountains. The sedimentary rocks include representatives of the Cambrian, Ordovician, and Permian.

* * * * *

The mountains extend as semidetached masses about 50 miles west and 30 miles north of Lawton, the principal town of the region. Their general trend is a little south of east. The most important mountains occupy the east third of the area and form the Wichitas proper. West of them is a great mesquite plain extending to Otter Creek, and beyond that an area of scattered granite and gabbro peaks extending some miles beyond Red River. Meers, the most important mining camp on the north side of the mountains, is at the foot of Mount Sheridan and about 20 miles northwest of Lawton. Craterville is on the south side, about 2 miles north of Cache. From Craterville to Oriana, on the edge of the mesquite plain, the mountains are being prospected at many points. Near Mountain Park, Wildman, and Roosevelt, towns in Otter Creek Valley, there are numerous prospects. At Lugart, near the junction of the two forks of Red River and about 12 miles south of Lone Wolf, there is an additional group of prospects.

The important camps in the area extending from Lawton to Lugart were visited, and samples were taken from the leading mines in each camp. In every instance an effort was made to get samples from the prospects upon which the most work had been done or where the most encouraging results were reported. It was thought that if some of these prospects had a demonstrable value, others might reasonably be considered worthy of further effort, but that if the best prospects had no value the less promising ones were not likely to yield any profit.

It was found that five modes of occurrence were being prospected: (1) Certain well-defined quartz veins which cut both granite and gabbro; (2) greenstone dikes which apparently cut indiscriminately all the crystalline rocks; (3) contacts of the granite and the gabbro, particularly where, as often happens, the granite sends off into the gabbro long apophyses or dikes usually assuming an aplitic phase; (4) disintegration products of the gabbro; (5) in one or two cases, along simple shear zones in the granite.

Some of the classes of occurrences enumerated are of the sort which, in view of the relations of the rocks, might well be expected to warrant prospecting. For example, quartz veins very commonly carry gold and other metals in sufficient amount to make the material an ore, though it is also true that many of the largest and best defined quartz veins known carry no values so low as to preclude the working of the vein. On the other hand, shear zones in granite have seldom been found to carry ore, and when present it is only in the immediate neighborhood of well-recognized ore bodies of other types and of considerable richness. Since, however, assays are reported to have shown values in all the kinds of occurrence noted above, samples were taken from both probable and improbable occurrences, and in many cases where there seemed to be no reason to suspect any values at all the owner or person in charge was invited to select samples of what he considered his richest material. In all cases where the workings were accessible samples were carefully taken across the entire vein. Occasionally these were taken in duplicate, and usually with hand specimens of the wall rock, any horses present, etc., so that the occurrence of the ore might, if necessary, be studied in detail.

* * * * * *

In view of the precautions taken in collecting the samples and of the great care with which they were assayed, the uniform absence of even a trace of gold and only the occasional presence of a small quantity of silver, copper, or lead admits of but one conclusion, that none of the prospects examined shows any ore in the proper sense of the term, and that none has any present or probable future value.

Whether future prospecting may reveal other occurrences which do have value can not, of course, be stated with certainty at the present time. It is believed, however, that the prospects examined were fully representative and that they have, in many cases at least, been developed enough to admit of a trustworthy judgment as to their value.

In no case do they offer any encouragement whatever for additional prospecting.

In the granite mountains near Lugart there are certain coarse pegmatites showing crystals of quartz 3 inches or more long. With the quartz crystals are some small, black semivitreous crystals, recognized by Doctor Hillebrand, of the Geological Survey, as belonging to the columbite-tantalate group. It is hoped that further investigation may reveal the presence of some of the rare earths.

OREGON.

By FREDERIC A. WING,

Assayer in charge United States assay office, Seattle, Wash.

Oregon's output of precious metals for the year ended December 31, 1903, deposited at the various United States mints and assay offices and custom smelters and refineries, shows a total of gold aggregating \$1,352,905.84, and silver \$162,390.15, as follows:

PRODUCTION OF PRECIOUS METALS IN THE STATE OF OREGON FOR THE YEAR 1903 COMPARED WITH THAT OF 1902.

Metal.	1902.		1903.	
	Quantity.	Value.	Quantity.	Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Gold	88,884.501	\$1,837,405.70	65,446.820	\$1,352,905.84
Silver ^a	109,462.78	141,527.62	125,598.63	162,390.15
Total.....		1,978,933.32		1,515,295.99
Net decrease.....				463,637.33

^a Coining value.

For various reasons several of Oregon's well-known quartz mines were not operated very extensively or were shut down entirely during the past year, notably the Red Boy, Cornucopia, and Virtue Consolidated, in the eastern portion of the State; the Oregon Security Company's properties (formerly the Musick, Helena Nos. 1 and 2, and the Champion) in the Bohemia district, and the Gold Bug mine in Josephine County. This alone would occasion a larger shortage in the output of the State as compared with former seasons were it not that some new contributors added their quota during the period mentioned, partially offsetting this loss. Many changes in the way of increased equipment and the general betterment of facilities for the successful handling of larger tonnage were made during the year, which should, and undoubtedly will, add greatly to the next season's results. The increased production in one section is often offset by decreased operations in another for the same period. This has been the history of all mining sections. The list of the mines of Oregon that did not produce during 1903 includes many of her oldest and, at times, best known producers.

BAKER COUNTY.

The output of the mines of this county was not as great as during the preceding season. Several new properties, however, produced for the first time, notably the Tabor Fraction, and much in the way of

development was done throughout the county. The United Elkhorn Mining Company, formerly the Baisley-Elkhorn, consolidated all its properties and installed a water-power plant, conducting its supply through something like 2 miles of pipe to its power house, added a large compressor to its equipment, and began operations on a new tunnel, which, when completed, will be some 2 miles in length and will crosscut all of the veins, some of them at a depth of 3,000 feet. The Pine Creek placer mines at Bridgeport added a pumping plant to their equipment, and, it is stated, this property produced about \$10,000 during the year.

The Turn-again Mining Company at Cableville produced about \$7,000; the Gray Eagle mine at Homestead about \$5,000; other placers producing were Huntington Mining Company at Connor Creek; Flick Bar Mining Company and the Clark Creek Mining Company, Baker district; Never Sweat mine, Pocohontas district, and the Manning Creek mine at Durkee. Considerable work was done on the Mountain View mine, which is comparatively a new property, in the Cracker Creek district. Something like \$50,000 was expended by its owner in underground work and the purchase of a 10-stamp mill, which will be erected early next season. One of the most profitable mining transactions in this district during the year was that of the Geiser-Hendryx Company. This company took a bonded lease on the Tabor Fraction, which is a small piece of ground about 238 by 600 feet adjoining the Columbia mine on the apex of the mountain. The company began taking out very rich ore from the start, and it is conservatively estimated that this small piece of ground yielded not less than \$100,000 for the season. The mill at the E. & E. mine was completely overhauled; much in the way of repairs was done and new machinery added, which materially increased its capacity. Operations were resumed on the mine as soon as its mill was in shape to run, but, as this was late in the year, the mine was not a large producer. The principal producers among the deep mines of the county were the North Pole, Columbia, Bonanza, Golconda, Morning, Emma, E. & E., and the Tabor Fraction.

JOSEPHINE COUNTY.

The Greenback mine contributed a large portion of the output of this county during the year, and maintained its reputation for continued and consistent development as well. Fifteen stamps and a cyaniding plant capable of handling the entire output of the mine were added to its equipment.

Other known producers were the Old Channel, Jewel and Lewis, Golden Bar, Oak Flat, Big 4, W. & O., Dale Hill Hydraulic, Stratton, Horsehead, Simmons and Logan, Winner, Galice Consolidated, Harmon and Green, Mountain Slide, Fry Gulch, Golden Wedge, Knickerbocker, Gold Bug, and the Dry Diggins mine, or the Gold Drift, as it is now known. The Gold Bug operated but little during the year, as its mill was being moved to the other side of the mountain, and many other substantial improvements were made, which will undoubtedly increase its output for the coming year.

Work on the big dam for the Gold Drift mine, which is being built across the Rogue River, was conducted with great activity. When completed the dam with its approaches will be some 700 feet in length.

It is the intention of the company to install four 18-inch centrifugal pumps which will pump directly into the pipes at a high pressure. Each pump will be run by four turbine wheels. With this enormous power sufficient water will be supplied to keep six giants running continuously. But a small portion of the 1,200 acres of ground composing this property is exhausted, for during the many years that these diggings were worked the limited supply of water available confined the operations to short seasons of from ten to forty days each year. The yield should be greatly increased when the new plant is in operation, which from present indications will be in the latter part of next season.

The Almeda mine, in the Galice district, is in a good state of development. It has about 1,400 feet of underground work done. It is a gold-copper property, with values averaging, according to report, about \$12.50 per ton, but as yet it is not a producer. The owners intend erecting a 100-ton matting plant on this property next year.

Considerable development work was performed during the year on the Cope mine, located on the same ledge as the Almeda.

JACKSON COUNTY.

The largest producer in this county was the Sterling mine. Other producers were W. M. Haitt, Lance Brothers, R. A. Cook, the Ray mines, E. A. Spaulding placers, Lucky Bart group, Little Frenchman, Pearce Mining Company, Red Hill, Sykes Creek, Hydraulic Mining Company, and the Opp mine.

DOUGLAS AND LANE COUNTIES.

The Bohemia, the principal mining district of this section of the State, is located in the Calapooia Mountains, in Douglas and Lane counties, 35 miles from Cottage Grove. These mountains extend from the Cascade Range and form a divide between the Willamette and Umpqua rivers. The formation of the district is said to be identical with the famous Cripple Creek district in Colorado.

For several years the Musick, Helena Nos. 1 and 2, and the Champion were operated separately, each having its own mill. During the year the three mills were torn down and consolidated into one of a 100-tons daily capacity, the necessary tram to bring the ores of the several mines to a common center was completed, the tunnel through Grouse Mountain begun, and a new dam and flume line built, and the electrical-transmission line erected, which will furnish power to operate the new mill, compressor, drills, etc. These improvements to the property represent an expenditure of nearly \$250,000.

The Lucky Boy Mining Company commenced the erection of a 40-stamp mill on its property in the Blue River district. The Little Chief-tain mine, in the Myrtle Creek district, was a producer during the year.

GRANT COUNTY.

The Badger mine, in the Susanville district, is the largest silver producer in the State, and reports credit it with its usual output for 1903. Other producers during the year were the Black Butte Mining Company, Welch & Briggs mine, Big Creek Deadwood Mining Company, Quartz Gulch Mining Company, and the Great Northern Mining and Milling Company.

COOS AND CURRY COUNTIES.

A small amount of gold and silver was mined in these counties during the year, principally placer gold from the Randolph Beach placers and Johnson Creek district.

WHEELER COUNTY.

About \$15,000 was taken from the placers in the Spanish Gulch district in this county.

ORIGIN OF THE GOLD AND SILVER PRODUCED IN THE STATE OF OREGON DURING THE CALENDAR YEAR 1903.

Origin.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Placer.....	10,000.00	\$206,718.35	1,000.00	\$1,292.93
Quartz.....	55,446.82	1,146,187.49	124,598.63	161,097.22
Total.....	65,446.82	1,352,905.84	125,598.63	162,390.15

BULLION OF OREGON PRODUCTION DEPOSITED AT THE UNITED STATES MINTS AND ASSAY OFFICES DURING THE CALENDAR YEAR 1903.

Institution.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Mints:				
Denver.....	11.700	\$241.86	6.30	\$8.14
Philadelphia.....	65.087	1,345.47	18.87	24.40
San Francisco.....	6,141.987	126,966.14	1,383.84	1,789.21
Assay offices:				
Boise.....	24,020.489	496,547.57	9,002.53	11,639.63
New York.....	17.404	359.77	1.66	2.15
Seattle.....	524.732	10,847.17	275.63	356.37
Total.....	30,781.399	636,307.98	10,688.83	13,819.90

DISPOSITION OF GOLD AND SILVER PRODUCED IN OREGON DURING THE CALENDAR YEAR 1903.

Disposition.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Deposited at the United States mints and assay offices.....	30,781.399	636,307.98	10,688.83	13,819.90
Shipped to custom smelters and refineries by producers.....	34,665.421	716,597.86	114,909.80	148,570.25
Total.....	65,446.820	1,352,905.84	125,598.63	162,390.15

SOUTH APPALACHIAN STATES.

By D. K. POPE,

Assayer in charge of the United States assay office at Charlotte, N. C.

The yield of this section in 1903 was, in coining values, \$331,157.36, a decrease compared with 1902 of \$67,613.52—nearly 17 per cent.

The amounts from this section deposited in the various mints and assay offices of the United States, according to official returns, was:

Metal.	Quantity.	Coining value.
	<i>Standard ounces.</i>	
Gold	12,749.745	\$237,204.56
Silver	1,773.81	2,064.07
Total.....		239,268.63

constituting 81.8 per cent of the gold product of the section, but only 4.3 per cent of the silver.

A comparison with the figures for 1902 shows the following fluctuations: A slight decrease in placer work, a notable increase in dredging, a small increase in shipping ores, and a relatively large decrease in the product of mills and of work.

A small amount of lead ores was sent out of the section for treatment. The bulk of the shipments was in auriferous and argentiferous copper and other pyrites.

No work was done at the Southern Smelting Works, at Oakland, Ga., and the smelters at Gold Hill, N. C., remained out of blast the entire year.

The Eustis smelter, at Norfolk, Va., ran on ores furnished in part by the Holloway and other mines in the Virgilina belt.

The dredge (river mining) was almost entirely confined to Lumpkin County, Ga., and to the adjacent counties. The output of local "works" was confined to the Haile Mine Chlorination Works, South Carolina, and to a lesser extent to the Creighton Mine Chlorination Works, Cherokee County, Ga., and to Colossus (Howie) Mine Cyanide Works, in Union County, N. C. The Hillabee Mine Cyaniding Works, in Tallapoosa County, Ala., was placed at work in the latter part of 1903, and materially increased in amount.

The cyanide work of the Colossus mine, above alluded to, was confined to reworking an old tailing dump and to experimenting with reference to work on fresh ores in 1904. No information has come to me of other establishments attempting more than preliminary work.

The continued low price of copper operated unfavorably to ore raisers in restricting the output. Large amounts of low-grade ores are at command, but the difficulties in concentrating them to the requisite high grade for shipping and smelting have worked still more unfavorably. Nevertheless progress has been made at several points, which may put the industry on a better basis. This is especially true of the Virgilina belt. The increasing demand for copper ores for smelting has led to some attention being given to copper mines per se, e. g., in the western part of North Carolina, and some promising developments have been made in Macon and Jackson counties.

The discontinuance of the local smelters has also disheartened the miners of low-grade ores, for little progress has been made in saving values the last year or two by milling processes.

There are few signs of important changes in 1904, favorable or unfavorable.

TOTAL PRODUCTION.

State.	Gold.		Silver.		Total.
	Fine ounces.	Value.	Fine ounces.	Value. ^a	
Alabama	236.755	\$4,894.16	49.07	\$63.44	\$4,957.60
Georgia.....	3,218.921	66,541.00	1,302.55	1,684.11	68,225.11
Maryland	30.577	632.09	1.32	1.71	633.80
North Carolina	5,108.566	105,603.45	13,076.24	16,906.66	122,510.11
South Carolina	5,218.858	107,883.38	270.94	350.30	108,233.68
Tennessee	2.796	57.80	.42	.54	58.34
Virginia.....	215.984	4,464.78	17,072.81	22,073.94	26,538.72
Total	14,032.457	290,076.66	31,773.35	41,080.70	331,157.36

^a Coining value.

COMPARISON OF 1902 WITH 1903.

GOLD.

State.	1902.	1903.	Increase (+) or decrease (-).
Alabama	\$2,938.47	\$4,894.16	+\$1,955.69
Georgia.....	106,766.15	66,541.00	-40,225.15
Maryland	2,719.14	632.09	- 2,087.05
North Carolina	93,650.30	105,603.45	+11,953.15
South Carolina	154,679.77	107,883.38	-46,796.39
Tennessee	142.36	57.80	- 84.56
Virginia.....	4,294.90	4,464.78	+ 169.88
Total	365,191.09	290,076.66	-75,114.43

SILVER.

Alabama	\$123.35	\$63.44	- \$59.91
Georgia.....	751.28	1,684.11	+ 932.83
Maryland	4.28	1.71	- 2.57
North Carolina	30,212.47	16,906.66	-13,305.81
South Carolina	749.70	350.30	- 399.40
Tennessee	1.28	.54	- .74
Virginia.....	1,737.43	22,073.94	+20,336.51
Total	33,579.79	41,080.70	+ 7,500.91

MARYLAND.

The production was mainly from the incidental work about the mines in Montgomery County:

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Montgomery.....	28.012	\$579.07	1.02	\$1.33
Unknown.....	2.565	53.02	.30	.38
Total.....	30.577	632.09	1.32	1.71

VIRGINIA.

Gold mining proper outside of the copper belt in Halifax County was at the same low ebb as in 1902, showing no particular changes, nor could any information be obtained of any probable change.

Smelting works were erected at Nellysford, Nelson County, for the general treatment of auriferous sulphurets; the same company is operating mines in North Carolina for the material for smelting.

A most important discovery of a strictly gold proposition was made in the summer of 1903—the Gold Banks mine, near Redbank post-office, Halifax County, 4 miles nearly northeast from Virgilina. Prospecting only had been done at the close of the year and no mode of treatment had then been planned. Ores ran from \$7.88 to \$30.17 per ton. This mine at its north end passed into the Howard mine, carrying material of the same character.

This county though long noted for its wealth in copper ores, carrying incidentally gold and silver, was not generally supposed to have any distinctively gold mines. If the history of the copper development affords any criterion, other like discoveries of gold mines should follow, and gold ores may eventually be found quite extensively in this belt.

The condition of the copper properties in this belt remained unchanged in 1903; the High Hills (Virginia Copper Company) showed little activity, the underground works were kept open, though no important extension was carried out; the concentrating plant was employed only a part of the time and small shipments were made.

A most important experiment was made by Doctor Keith in the line of both reduction and concentration, which was reported favorably. Sulphurets of moderate grade were roasted with a small amount of coal slack or other fine carbonaceous matter in a three-deck automatic reverberatory furnace. The copper mineral was reduced to metallic copper; the roasted mass was subsequently concentrated on a Wilfley table; a high-grade product was easily made at a cost of \$1 per ton, which was quite suitable for a high concentration.

The prospecting work of the Seaboard mine was pushed vigorously the entire year; no attempt to erect works for treating the ore had been made.

The longitudinal extent of the underground works aggregated nearly 1,200 feet; the greatest depth (shaft No. 2) was 260 feet. Satisfactory bodies of ore were blocked out, the vein in places was 8 feet wide.

The ore is bornite and glance, with the same characteristics as are shown in most of the mines of the section.

The situation at the near-by Pontiac was the same, but plans were under consideration for enlarged work in 1904. There was no change at the Wall mine.

Railroad facilities are still unrealized. It is not probable that any reduction works will be erected early enough to affect the output of the section in 1904. There is no appearance that the work of 1904 will be materially different from 1903. The extension of this belt to the southwest into North Carolina will be discussed under that State.

The details of production are shown in the following table:

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Fauquier.....	2.250	\$46.51	0.23	\$0.29
Fluvanna.....	25.727	531.83	.68	.88
Franklin.....	4.427	91.51	1.62	2.10
Goochland.....	75.628	1,563.36	9.65	12.47
Halifax.....	42.926	887.35	17,037.42	22,028.19
Loudon.....	13.659	282.36	12.67	16.38
Louisa.....	6.881	142.25	.59	.77
Pittsylvania.....	5.280	109.16	.73	.94
Spottsylvania.....	6.699	138.47	.41	.54
Stafford.....	2.250	46.51	.23	.29
Unknown.....	30.257	625.47	8.58	11.09
Total.....	215.984	4,464.78	17,072.81	22,073.94

NORTH CAROLINA.

The Virgilina copper belt is worked to a greater or less extent for more than 15 miles southwest into Granville and Person counties.

The Blue Wing, in Granville, and the Holloway, in Person, were entirely idle in 1903. The Tingen mine, to the southwest end of the explored belt, was prospected only.

The Person Consolidated Gold and Copper Mining Company (the Yancey) was worked very extensively. Longitudinally, the aggregate length was 1,200 feet; the greatest depth reached was nearly 400 feet; the ore bodies were of satisfactory values. A recent development, 1,000 feet from the main shaft and at a depth of 150 feet, showed a large body of ore of high grade.

The machinery (a steel Chilean mill), discharging onto Wilfley and other concentrating tables, has a capacity of 80 tons per day. These concentrates are brought up to a high figure and shipped to northern and foreign smelting works for matte treatment. Increasingly favorable figures are obtained for contents—notably, the precious metals—and this increased return, combined with low freight rates, has put a new face on mining here. The output of this part of the belt is likely to be maintained.

The production of Franklin, Nash, and Warren counties was greatly diminished. Some prospecting work was done at Swinton and other points in Moore County, but the production was not so large as in 1902.

In Rowan County the Gold Hill Copper Company's mines were tied up in litigation the entire year; at the McMakin large development

work was done and there was some reduction of the ores by ordinary mill treatment. The Union Copper Company did little underground work and no milling or smelting; several thousand tons of ore were shipped for matte treatment. The Rowan copper mine and the Salisbury copper mine received some attention, the former being taken in hand for its shipping ores. The Gold Knob mine, a gold proposition, was put at work at the end of the year.

Other copper properties of the State at work are the Cid and Emmons, in Davidson County; still other copper properties are the Fentress, Deep River, Lindsay, and McCullough, in Guilford, which not only shipped ores but also milled a portion of the product, thus materially increasing the output of the county.

In Montgomery County the producing mines were the Russell, the Montgomery, and the Iola. The work was even more active than in 1902, and the production was increased more than one-fourth. In the last two mines the work was pushed both in extension and in depth and large reserves are now available. The marked success of these two properties has given a great encouragement to other operations in that section.

No change was visible in the South Mountain area, in Rutherford or in Polk County, or in the mountain counties generally. The only mine at work in Cherokee was the Ramsey, near Andrews.

The Norlina mine, at Davidson; the Sawyer, in Randolph, and the Shuford, in Catawba, may be mentioned as steady but not large producers. The Black mine, in Union, was also a steady producer; at the Colossus (Howie) a large body of tailings was cyanided with reported good results.

In Stanley County the Barringer was reopened in 1902, with very remarkable results. The vein is $\frac{1}{2}$ foot in thickness, but on the foot wall is a $2\frac{1}{2}$ -inch seam carrying extraordinarily rich ore. It is reputed to carry a little tellurides. Very little of the gold was deposited, being kept in the office for advertisement.

The Crawford (Ingram) mine, near Albemarle, produced some interesting nuggets, repeating its old history in the matter of unusual finds.

In Cabarrus County the work at the Miami reported for 1902 was extended, and very large reserves accumulated both on the dump and in the mine. No mill or other reduction works had been erected, but the mining plant had been perfected, and measures are now (May, 1904) being taken to supply the needed plant for a complete smelting establishment.

In Mecklenburg County some small shipments of ores were made, mostly for experimental runs, but the actual production depended on the Capps, Wilhelmina, and the Surface Hill. The St. Catherine, Rudisil, and the McDonald are now supplied with new machinery for reopening on a large scale. The Hipp mine has also been reopened. I see no indication of any important change in 1904.

PRODUCTION OF NORTH CAROLINA BY COUNTIES, 1903.

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Burke.....	77.711	\$1,606.44	13.22	\$17.09
Cabarrus.....	156.601	3,237.23	66.47	85.93
Caldwell.....	1.988	41.10	.67	.87
Catawba.....	57.135	1,181.07	14.77	19.09
Cherokee.....	55.366	1,144.52	4.57	5.91
Clay.....	2.250	46.51	.22	.29
Cleveland.....	254.907	5,269.40	.90	1.16
Davidson.....	11.132	230.12	124.93	161.52
Franklin.....	7.875	162.79	1.92	2.48
Gaston.....	9.522	196.84	2.20	2.85
Granville.....	27.220	562.68	1,747.18	2,258.97
Guilford.....	184.145	3,806.62	123.09	159.16
Halifax.....	20.502	423.81	2.03	2.63
Henderson.....	9.000	186.05	1.80	2.33
Iredell.....	6.474	133.84	1.23	1.60
Lincoln.....	25.272	522.42	7.65	9.90
Macon.....	4.500	93.02	.45	.58
McDowell.....	109.335	2,260.15	23.67	30.60
Meeklenburg.....	414.995	8,578.72	79.58	102.89
Montgomery.....	2,352.710	48,634.83	679.28	878.27
Moore.....	18.812	388.87	6.22	8.04
Nash.....	6.750	139.54	1.66	2.15
Orange.....	17.002	351.46	3.95	5.11
Person.....	53.026	1,096.15	6,676.51	8,632.24
Polk.....	29.132	602.21	3.27	4.22
Randolph.....	19.171	396.30	5.38	6.96
Rowan.....	89.609	1,852.39	3,185.96	4,119.21
Rutherford.....	63.957	1,322.10	13.08	16.91
Stanley.....	799.363	16,524.30	89.75	116.05
Union.....	150.052	3,101.84	74.00	95.68
Warren.....	6.750	139.54	1.35	1.75
Unknown.....	66.302	1,370.59	119.28	154.22
Total.....	5,108.566	105,603.45	13,076.24	16,906.66

SOUTH CAROLINA.

The amount of the production of the South Carolina mines is nearly 30 per cent under that of 1902, viz, \$108,233.68, against \$155,429.47 in 1902. Few of the counties of this State showed as great activity as in the preceding years. The amount of ore shipped, mainly from the Ferguson mine, in York County, was notably larger. The greater part of the work was done in Lancaster, Chesterfield, Spartanburg, Union, and York.

At the Haile mine, in Lancaster, the ore showed a lower tenor, which caused a diminished output, but the mills were kept at work to their full capacity. The reserves are ample and a better grade of ore is at command for 1904; the mine is in fine condition. The Blackmon mine, in the same county, was operated successfully a part of the year.

In Chesterfield County at the De Soto (Brewer) mine the petty work of the small operators was discontinued and a more extended work was undertaken, employing the old milling plant therefor. The preparations for this larger work were not completed till late in the autumn. The company is in position to do a large work in 1904.

The Ferguson mine, in York County, disposed of its output to the smelting works at Norfolk, Va., and some of the other mines in this section also made shipments. The Magnolia mine, in this county, was at work a part of the year.

At the Ophir (Thomson) mine, in Union County, the depth of 165 feet was reached and short laterals were run. An adit was commenced to reach the vein at the depth of 125 feet from the crown of the hill, and cutting the vein at such a point as to give nearly 800 feet of laterals. This mine was a constant producer in 1903.

The production of this State is likely to be increased in 1904 to something like the proportions of 1902.

PRODUCTION OF SOUTH CAROLINA BY COUNTIES, 1903.

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Abbeville	3.000	\$62.01	0.97	\$1.24
Anderson	1.800	37.21	.18	.23
Cherokee	13.184	272.54	2.53	3.27
Chesterfield	278.205	5,751.02	3.83	4.96
Granville	3.976	82.19	1.16	1.50
Greenwood	1.124	23.24	.22	.28
Lancaster	4,334.759	89,607.40	145.76	188.46
Oconee	3.245	67.09	1.22	1.58
Pickens	2.239	46.29	.52	.67
Spartanburg	16.199	334.87	1.92	2.48
Union	229.084	4,735.58	90.95	117.59
York	315.557	6,523.14	20.32	26.28
Unknown	16.486	340.80	1.36	1.76
Total	5,218.858	107,883.38	270.94	350.30

GEORGIA.

The decrease in Georgia was nearly as marked as in the case of South Carolina. The "boom" period of mining appears to have spent its force for the present. This decrease was almost entirely due to the diminution of work in White and McDuffie counties and to the suspension during most of the year of the Creighton mine, in Cherokee County, which had for years been the largest producing mine in the State. The litigation respecting this property was so far adjusted as to allow it to be put at vigorous work in the autumn at something like the old figures, and this production continues into 1904 without abatement.

There was an increased yield in Lumpkin County. The placer production of the State was largely decreased. There was a decrease also in mill work and in returns from chlorination plants and, in fact, in all the lines of production. The facilities for smelting are now nearly wanting. The end of the year showed a partial revival toward early figures and the production of 1904 will apparently mount up to the results of former years. No new features of work were adopted in 1903.

In Bartow, Cobb, Columbia, Dawson, Dekalb, Fannin, Forsyth, Gilmer, Gwinnett, Habersham, Lincoln, Meriwether, Morgan, Oglethorpe, Rabun, and Union counties only placer work of the most trivial character was done.

In Carroll County, near Villa Rica, the Southern Klondike Mining Company's mines were operated on a small scale; in Murray County, the Galt Mine; in Hall, the Potosi; in Lincoln, the Pascal, were operated on a somewhat larger scale. In McDuffie County the more notable

results were due to the Columbia, the Tatum, and the International. In White County the only mines operated were the Reynolds, Danforth, and the Loud.

In Wilkes County the Seminole Mining Company made a considerable shipment of copper and lead ores.

In Haralson County the old Royal mine was reopened in the autumn and is still vigorously worked.

The Creighton, in Cherokee County, as previously noted, was again put to work near the end of the year. The dependence for ore during this period was on the remnant of the old reserves together with the ore uncovered in driving new development work looking to larger operations in 1904.

In Lumpkin County the Crown Mountain, Dahlonega Consolidated, with the dredge on the Chestatee River, were the only places worked on a noteworthy scale. All of these did their accustomed work. In addition to these, the following points were worked a part of the year on a small scale: The Briar Patch, the McAfee, the Betz, and the Singleton. There appears to be no reason for expecting any marked changes in this county for 1904.

PRODUCTION OF GEORGIA, BY COUNTIES, 1903.

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Bartow	2.417	\$49.97	0.90	\$1.17
Carroll	33.223	686.79	6.96	9.01
Cherokee	404.212	8,355.82	30.87	39.91
Cobb	14.025	289.92	19.13	24.74
Columbia	6.022	124.50	3.46	4.47
Dawson	88.984	1,839.27	4.75	6.14
Dekalb .....	.910	18.83	.59	.77
Fannin	23.775	491.48	1.14	1.47
Forsyth	11.218	231.91	.52	.68
Gilmer	1.904	39.37	.58	.74
Gwinnett	1.693	35.00	.50	.66
Habersham	6.760	139.74	1.54	1.99
Hall	40.851	844.46	11.18	14.45
Haralson	60.786	1,256.58	27.87	36.04
Lincoln	29.966	619.46	12.13	15.69
Lumpkin	1,547.567	31,991.06	172.53	223.06
McDuffie	242.374	5,010.32	42.36	54.77
Meriwether	4.804	99.31	1.00	1.28
Morgan	1.202	24.83	.13	.16
Murray	22.419	463.46	2.33	3.01
Oglethorpe	3.651	75.48	1.14	1.47
Rabun	1.572	32.50	.22	.28
Union	34.464	712.45	.45	.58
White	320.653	6,628.51	26.16	33.83
Wilkes	51.570	1,066.05	900.30	1,161.02
Unknown	261.899	5,413.93	33.81	43.72
Total	3,218.921	66,541.00	1,302.55	1,684.11

ALABAMA.

There was a slight increase in the amount of production of the precious metals in 1903, due mainly to a new operation in Tallapoosa County; otherwise there was no change, and the statements for 1902 will apply to 1903.

The Hillabee Gold Mining Company, at Yates, Tallapoosa County, put its cyaniding plant to work in the summer, and from that time did a very steady work. It is probable that the same increase may be expected in 1904.

The statistics are shown in the following table:

PRODUCTION OF ALABAMA, BY COUNTIES, 1903.

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Clay	17.717	\$366.25	6.41	\$8.28
Cleburne	38.705	800.09	12.02	15.53
Randolph	2.300	47.53	.06	.08
Tallapoosa	170.432	3,523.15	29.79	38.51
Unknown	7.601	157.14	.79	1.04
Total	236.755	4,894.16	49.07	63.44

TENNESSEE.

The work was of the same character as in 1902, and apparently there will be no change in 1904.

As an item of news, mention may be made of the Coker Creek Mine and Milling Company, of South Dakota, which will erect a 10-stamp mill on Coker Creek.

The figures are shown in the following table:

County.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Monroe	2.025	\$41.86	0.35	\$0.45
Miscellaneous .....	.771	15.94	.07	.09
Total	2.796	57.80	.42	.54

IMMEDIATE SOURCES OF PRODUCTION.

State.	Placers.		Mills.		Chlorination and cyanide works.		Dredge (river) mining.	
	Gold.	Silver. ^a	Gold.	Silver. ^a	Gold.	Silver. ^a	Gold.	Silver. ^a
Alabama	\$312.78	\$0.61	\$2,128.50	\$44.72	\$1,697.88	\$10.19		
Georgia	21,569.92	143.35	26,160.59	219.92	3,157.30		\$3,862.55	\$12.60
Maryland	463.26	1.06						
North Carolina	9,020.04	116.63	79,600.38	1,329.57	109.95	1.01	24.74	.12
South Carolina	4,693.79	11.95	44,660.37	302.66	51,026.09			
Tennessee	57.80	.54						
Virginia	1,649.77	14.66	1,302.12	11.60				
Total	37,767.36	288.80	153,851.96	1,908.47	55,991.22	11.20	3,887.29	12.72

State.	Shipping ores.		Untraceable.		Total.	
	Gold.	Silver. ^a	Gold.	Silver. ^a	Gold.	Silver. ^a
Alabama	\$496.26	\$6.48	\$258.74	\$1.44	\$4,894.16	\$63.44
Georgia	3,159.55	1,240.73	8,631.09	67.51	66,541.00	1,684.11
Maryland	115.81	27	53.02	.38	632.09	1.71
North Carolina	14,789.20	15,433.40	2,059.14	25.93	105,603.45	16,906.66
South Carolina	5,313.01	16.33	2,190.12	19.36	107,883.38	350.30
Tennessee					57.80	.54
Virginia	939.03	22,039.83	573.86	7.85	4,464.78	22,073.94
Total	24,812.86	38,737.04	13,765.97	122.47	290,076.66	41,080.70

^aCoining value.

SUMMARY OF IMMEDIATE SOURCES OF PRODUCTION.

Classification.	Gold.	Silver. <i>a</i>	Total.
Placers	\$37,767.36	\$288.80	\$38,056.16
Mills	153,851.96	1,908.47	155,760.43
Chlorination and cyanide works.....	55,991.22	11.20	56,002.42
Dredging (river) mining.....	3,887.29	12.72	3,900.01
Shipping ores	24,812.86	38,737.04	63,549.90
Untraceable source.....	13,765.97	122.47	13,888.44
Total	290,076.66	41,080.70	331,157.36

a Coining value.

SOUTH DAKOTA.

By FRANKLIN R. CARPENTER, Ph. D., F. G. S. A.,

Mining and Metallurgical Engineer.

Production for the year ending December 31, 1903:

	Fine ounces.
Gold	339, 802. 920
Silver	273, 545. 000

This was produced mainly by the local plants, but some shipments of high-grade ores were made to outside plants, principally Denver, for reduction, but their value is included in the above estimate. The amount of placer gold that is now produced is not important. Therefore the bulk of this value is derived from ores mined and treated at home by the numerous stamp mills and cyanide mills.

The principal precious metal mining companies operating in South Dakota during the year 1903 were the Homestake Mining Company, the Golden Reward Mining and Milling Company, the Horseshoe Mining Company, the Spearfish Gold Mining and Reduction Company, the Penobscot Mining Company, the Clover Leaf Mining Company, Lundborg & Door, Columbus Consolidated Mining Company, the Imperial Gold Mining and Milling Company, Wasp No. 2 Mining Company, Alder Creek Mining Company, Deadwood Standard Mining Company, Dakota Mining and Milling Company, Hidden Fortune Mining Company, Holy Terror Mining Company, Golden Crest Mining Company, Jupiter Mining Company, Lexington Hill Gold Mining Company, Golden West Mining Company, and Monarch Mining Company.

The gold and silver production of this section was materially cut down by the closing of the Golden Reward smelter very early in the year. This plant alone could have added two millions to the output. Its place is but partly supplied by the company's new cyanide plant.

The bulk of the production for the year 1903 was derived from free-milling ores of the Homestake type, the Homestake Company itself having materially increased its output from causes which will appear later.

Next to stamping and free milling, the cyanide process is now the important process of the Hills, and nearly all of the companies in the above list have their own cyanide mills. Chlorination, which was formerly of such importance in the Hills, has now disappeared as a factor in the reduction of ores, and smelting is of less importance than formerly. Almost the entire production of ores, therefore, in South Dakota is now reduced to the free-milling process, aided by cyanide for the tailings and by the cyanide process direct, both of which are of constantly increasing importance.

The gold-producing section of South Dakota is confined to the south-

western part of the State, and comprises the Black Hills uplift, which consists of a central nucleus of metamorphic rocks, from which the later sedimentary rocks dip outward on all sides, their outcrops forming concentric rings of ever-increasing diameter.

The principal gold-bearing section is located in the northern part of this area, which was the seat of great volcanic disturbance about the close of the Cretaceous age. The latter ore bodies, especially those of the Cambrian and Carboniferous rocks, owe their origin to this disturbance, but the ore bodies of the Homestake type occurring in the underlying metamorphic rocks date from pre-Cambrian time.

The principal mine of the Black Hills is the Homestake. It is located in the northern part of the Hills and consists of a vast series of impregnated schists, in which occurs free gold, but associated with it is some pyrite, also gold-bearing. These impregnated schists appear to lie in a vast synclinal fold, dipping to the southeast. The gold-bearing portions attain a maximum thickness of nearly 500 feet. The values in gold per ton are variable, but at the Homestake, proper, it seems to average about \$4. Other portions are worked which do not run over \$2 per ton.

The ore is first treated by stamping and simple amalgamation, in enormous stamp mills of the California type. The mills employ battery plates and apron plates of the ordinary kind, beyond which are placed silver-faced amalgamating plates of great length, the object being to save the highest possible percentage by simple amalgamation. The tailings, however, still carry values, which are further treated in the company's cyanide mill, perhaps the largest and most efficient ever erected, and doubtless treating the lowest-grade material ever made profitable by this process.

Simple stamp-milling had its greatest development at these mines. They were discovered less than thirty years ago, at a time when the Black Hills' section was an unbroken wilderness, hundreds of miles from railroad connections. The ore existed in great quantity, but was of such a very low grade that its economic treatment was a matter of grave doubt, and too much credit can not be given to the pioneer workers of this section. The possible value of these deposits was first seen by the late Senator George Hearst. He saw clearly that a small stamp mill, such as were then in use, could not be made to pay upon such a deposit and that the solution of the question lay in the handling of an enormous tonnage at a low cost; but the present big mills had not then been developed and, I have been told that it was with difficulty that Senator Hearst could get reputable builders to undertake their construction, and that the question was met by inducing them to place what was essentially two 40-stamp mills, back to back, thereby forming the first 80-stamp mill ever erected under one roof, and driven from one engine. It is all simple enough now, and stamp mills of almost any capacity are readily undertaken, but, at this time, such a mill was considered little short of marvelous. When we consider that the machinery had to be built in San Francisco, transported by rail to Cheyenne, and freighted thence by wagons, a distance of about three hundred miles to an absolutely unbroken wilderness, the magnitude of the undertaking may be imagined. Added to this was the difficulty of opening the mines, the construction of ditches and supplying the mines with timber and the mills with fuel. The timber in the immediate vicinity was at once exhausted and the construction of a railroad

became an urgent necessity. This meant the freighting of rails and locomotives to the Hills in the same manner in which the mills were brought; but one thing calls for another—mills and railroad meant a machine shop and a foundry; but it was all accomplished, and years before the Black Hills had railroad connection with the outside world. I doubt if the mining world has even given Senator Hearst proper credit for the work which he did, or considered the difficulties under which he labored; nor should his associates—Mr. James B. Haggin and Mr. Lloyd Trevis—who looked after the financial end of the enterprise, be forgotten.

In the practical work in the Black Hills, Senator Hearst was ably seconded by his superintendent, Samuel McMasters, a mining "engineer" of the "muscular" type, now rapidly disappearing from the West, but whose value and work must be seen as I have seen it to be appreciated. Mr. Hearst and Mr. McMasters were in no sense technical men, and probably it is well for the good of the section that they were not, but they had that innate ability before which a technical education takes a second place. It was an ability to do great things, an ability to meet and overcome difficulties without figuring too finely on the cost, and I doubt if in the whole world, at that time, their places could have been better filled. In a certain sense they may have been said to have represented the genius of the race, and to have possessed the needed ability of such prehistoric "engineers" as built Stonehenge—work which even now appals. In some such class I would place Hearst, Mackay, Daily, McMasters, and many others who seemed to be called forth to meet these special cases in the development of the far West.

Difficult as was the problem presented to Hearst and McMasters, it must be remembered that they had docile ores to treat. After the magnitude of the proposition was once grasped, the treating of the oxidized ores forming the outcrop of the Homestake vein was as simple as the thrashing of wheat. They had only the rich surface accumulations of ages to send through their mills, retort the amalgam, melt the gold into bars, and send it, under guard, to the nearest railroad station. In time, however, the unoxidized part of the vein was reached and new problems arose. The values could no longer be so fully saved by amalgamation, and while the work was still one of magnitude, additional skill was required not only to carry on deep mining, but to save the values. Both Senator Hearst and "Sam" McMasters had passed to their rest. Dividends were still maintained, but the Homestake and other mines on the belt seemed to have reached a standstill in their development, if not a period of actual decline. This was the condition when Mr. Thomas J. Grier, the present superintendent, succeeded to the management. He had received his mining education under McMasters, but was a man of far different type and of great business attainments, and to him and Mr. James B. Haggin, of New York, is due the present prosperity of the Homestake. The new conditions required not only high engineering skill, but business care of the highest order. Where 4,000 tons of ore are to be treated daily an item of even 1 cent per ton becomes a matter of interest, while the saving of 10 cents per ton will pay a dividend nearly equal to that earned upon \$5,000,000 in Government bonds, the need of technical skill becomes apparent.

The first attempt at improving the process was in trying to concen-

trate the tailings by jigs and buddles, and the addition of silver-plated amalgam plates. The first series of silver plates added made a saving of about 15 cents per ton. This was so favorable that Mr. Grier added a second series, making a further saving of about 7 cents; and, in time, a third series, which effected a still further saving. The concentrates from the jig mill were sold to the local pyritic smelters, but still there were losses which he thought should be saved and he began a study of cyanidation. An expert, Mr. C. W. Merrill, was called in and an experimental plant was built and operated with great care. This proved so successful that their present large cyanide plants were erected—the largest and, I believe, the most efficient in the world.

A few years ago it was seen that additional water must be secured if the Homestake output was ever to be increased, or even maintained as it was then. As the timber was destroyed the water supply became more and more irregular. At some times there was an excess, but at others it became necessary to “hang up” a large number of stamps. No additional water could be had from the eastern side of the Hills, while that upon the western side was not only difficult to obtain, as it would have to be pumped over the divide, but was already appropriated by 30 miles of farms along the valley for irrigation purposes. The rights of the farmers were purchased, a large stream was brought by ditch many miles, a pumping station established, requiring a branch railroad for its coal supply, and the water of the stream pumped bodily over the intervening ridge and piped thence some 15 miles to the Homestake mines. This work cost over \$1,000,000, but its value is seen in the increased output of the Homestake, whose ores are believed to be practically inexhaustible, and whose output is limited only by its milling capacity, and this last again by the available water supply. About three-fifths of the gold production of the Black Hills is furnished by the mines of the Homestake.

The question often arises, Is the Homestake deposit unique; are there none others like it in the Hills, and if there are why do we not hear from them?

While I believe the Homestake to be the most valuable of all such deposits, I do not think it is unique—in fact, I know it is not; but no other deposit can ever have the advantage of the Homestake. Being first in the field its development began while the near-by slopes were well timbered, and the Government permitted the free use of the timber. All of the water of the section was early monopolized by this great corporation, which, in itself, must ever give it a great advantage. Other mines being unable to use water at hand must transport their ores to water, and while this is quite possible and even desirable, farming interests must be recognized and timber secured for mining purposes, all of which requires a capital of such dimensions that the development of like deposits has been retarded.

Geologists have divided the earth into petrographical provinces; it can also be divided into metalliferous provinces—some sections, like Lake Superior, yielding copper, others, like Mexico, yielding silver; but the Black Hills, like the South African section, is emphatically a gold province. The entire metamorphic area—a section about the size of the State of Connecticut—is gold bearing everywhere. The entire length of the axis of the uplift shows gold mines. All of the slates and schists across the northern section are likewise gold bearing. While the great bulk of these ores are too lean to pay for working,

yet the quantity of gold known to exist in an area of 20 miles square in the northern Hills is appalling to the intellect.

While in charge of the State school of mines, I made a conscientious attempt to determine quantitatively, the amount of gold existing in connection with what appeared to have been a single outpouring of lava in the northern Hills, and arrived at a quantity of gold greater than all of the existing accumulations of gold on earth; but beyond the mere curiosity of such a calculation it is, of course, an unprofitable speculation, as it can never be mined or utilized.

Overlying the metamorphic area are the conglomerates and quartzite formations of the Cambrian. In these rocks gold deposits occur which are clearly derived from the underlying slates. This quartzite proper was derived from these slates in Cambrian times by an advancing sea. The slates were cut down, forming beach sands, in which the gold existed as in the Cape Nome placers to-day and, in my opinion, were in every way analogous to them originally. Upon the top of the quartzite, which is usually less than fifty feet in thickness, occur long, narrow ore bodies, mainly silica, but carrying gold in quantity, often rich enough to smelt, though now usually treated by cyanide mills. This quartzite and these long, narrow ore bodies, believed to overlies vertical veins in the slates beneath, usually connected with a vertical fissure leading thereto, have given rise to numerous cyanide mills other than those of the Homestake, and chiefly from them is derived the remaining gold output of the Hills.

Many persons have contributed to the development of the cyanide process in the Black Hills, and it is hard to give proper credit. Mr. Harris Franklin, of the Golden Reward, and Mr. Thomas J. Grier are, of course, among the most prominent developers of this process, because by their financial aid they made experiment and adaptation possible, but many others have helped. The largest mills have been erected by Mr. C. W. Merrill and Mr. Paul Dankwardt, both of whom deserve especial mention. Perhaps some of the most original work, if not of so great magnitude, has been done by Mr. John V. N. Dorr who, besides a taste for such work, has decided ability. The mill of Lundberg, Door, & Wilson shows many departures of interest from established methods.

Capt. Seth Bullock, William McLaughlin, and W. S. Elder have also aided materially in the introduction of this process into the Black Hills' metallurgy—a process which has driven smelting and chlorination from the field, although pyritic smelting and chlorination had their earliest and most important development here and both have received prominence in previous reports.

My thanks are due to almost all of the mining companies operating in the Hills, all of whom seemed anxious to have full and accurate reports made.

UTAH.

By B. H. TATEM,

Assayer in charge, United States assay office, Helena, Mont.

The value of the gold, silver, copper, and lead that was won from the ores mined in Utah during the calendar year 1903 was \$26,890,285.41. The quantity and value of each metal produced is shown in the following table, gold and silver being computed at their respective coinage rates, and copper and lead at the year's average market price for each:

Description.	Quantity.	Value.
Gold.....fine ounces..	192,094.149	\$3,970,938.48
Silver.....do....	11,814,932.20	15,275,871.93
Copper (at \$13.235 per cwt.).....pounds..	25,335,652.00	3,353,173.54
Lead (at \$4.237 per cwt.).....do....	101,258,000.00	4,290,301.46
Total.....		26,890,285.41

The showing for the year as made by the mines in this State is a most satisfactory one. New properties are being opened in all of the more important mining districts, while the increased market prices for silver, copper, and lead, the enlargement of smelter facilities, and the reduction in railroad traffic rates on ore from the mines to various reduction works have immensely stimulated the industry and warranted improvements of plants, and in methods of the most permanent and modern kind.

In point of value in Utah's metal production during 1903 silver is the greatest, followed, respectively, by lead, gold, and copper. Recently the most striking progress has been noted in the steadily increased amount of copper won. It is but a few years ago that little of this metal was produced in Utah. Not only was the quantity of copper maintained in 1903, but the price showed remarkable improvement as well, having been \$1.61 per hundredweight greater than in the previous year. So also with lead, the increased price having been 17 cent per hundredweight.

The yield of gold during 1903, as produced by the several counties of the State, was as follows:

County.	Quantity.	Value.
	<i>Fine ounces.</i>	
Beaver.....	886.000	\$18,315.25
Boxelder.....	4,900.000	101,291.99
Iron.....	2,802.320	57,929.10
Juab.....	41,237.867	852,462.37
Piute.....	20,762.600	429,201.03
Salt Lake.....	44,427.157	918,390.84
Sunmit.....	15,825.230	327,136.53
Tooele.....	60,729.195	1,255,383.88
Utah.....	3.780	78.14
Washington.....	520.000	10,749.35
Total.....	192,094.149	3,970,938.48

The quantities and values of the gold won from the different classes of ore in 1903 was as follows:

Classification.	Quantity.	Value.
	<i>Fine ounces.</i>	
Quartz and dry ores	3,037.535	\$62,791.42
Cyaniding ores	82,536.355	1,706,177.88
Lead ores	19,648.941	406,179.66
Copper ores	75,390.617	1,558,462.37
Milling ores	11,480.701	237,327.15
Total	192,094.149	3,970,938.48

The amount of gold taken from copper ores is a marked increase over that of previous years and arises principally among the mines of Bingham district. There the mining of copper ores was the leading feature of the Utah industry in 1903, and the advantage then and there achieved promises to continue without material abatement for many years. Conditions attendant upon the gold derived from the other classes of ores mined in the State during 1903 were practically unchanged from those of previous years.

The amounts and values of the silver output from the several counties in 1903 was as follows:

County.	Fine ounces.	Coining value.
Beaver	96,027.00	\$124,156.12
Boxelder	2,280.00	2,947.88
Iron	14,410.30	18,631.50
Juab	3,065,950.19	3,964,056.81
Piute	67,109.14	86,767.37
Salt Lake	1,215,252.84	1,571,235.99
Summit	7,110,850.12	9,193,826.42
Tooele	232,279.97	300,321.58
Utah	20.00	25.86
Washington	10,752.64	13,902.40
Total	11,814,932.20	15,275,871.93

By distributing the aggregate quantity and value of the silver output for 1903 into the several classes of ore the following results are obtained:

Classification.	Fine ounces.	Value.
Quartz and dry ores	206,692.04	\$267,238.19
Cyaniding ores	70,709.14	91,421.92
Lead ores	8,268,302.28	10,677,400.92
Copper ores	3,195,007.40	4,130,918.66
Milling ores	81,221.34	108,892.24
Total	11,814,932.20	15,275,871.93

The great silver-lead mines of Summit County continue to exhibit remarkable vitality and furnish the larger part of the silver won in the State. In Utah the contained silver values have always been an incentive to the opening and mining of both lead and copper deposits. With the demonstration of these has come the building of modern smelters. With new plants and recent improvements in old ones no State is better favored in this respect. The valley of the Great Salt

Lake is now the greatest smelting center of the West, the mammoth plants of the American Smelting and Refining Company, of the United States Company, of the Bingham Consolidated Company, and of the Utah Consolidated Company, being located within a radius of only a few miles of each other, near Salt Lake City. During the year two new smelting plants have been completed elsewhere in the State, viz, the Majestic at Milford and the Yampa at Bingham.

In the tables and résumé that follow is shown the output of precious metals for the principal counties of Utah in 1903:

BEAVER COUNTY.

Metal.	Quantity.	Value.
Gold.....fine ounces..	886	\$18,315.25
Silver.....do....	96,027	124,156.12
Copper.....pounds..	465,369	61,591.59
Lead.....do....	5,565,694	235,818.45
Total.....		439,881.41

During the entire year the mining industry in this county was unusually active. Near the close of the year the newly erected smelter of the Majestic Company at Milford was put into commission to handle custom ores from the mines and prospects tributary thereto. A sufficient tonnage to maintain steady operations seems assured. While the product of the mines is generally a low-grade sulphide, the values increasing with deeper mining, it is easily concentrated. For many years the largest property in the county has been the Horn silver mine, its products being a high-grade silver ore.

JUAB COUNTY.

Metal.	Quantity.	Value.
Gold.....fine ounces..	41,237.867	\$852,462.37
Silver.....do....	3,065,950.19	3,964,056.81
Copper.....pounds..	7,114,216.00	941,566.49
Lead.....do....	12,422,984.00	526,351.82
Total.....		6,284,437.49

This county, situated in the central western part of the State, is reached by branch lines of both the Oregon Short Line and Denver and Rio Grande railways. The principal mining camps are those of Eureka, Mammoth, Robinson, Silver City, and Knightsville. The above values are an increase over the production of 1902. The Centennial-Eureka was the largest producer, the tonnage of ore from these mines in 1903 exceeding all previous records.

Great as was the performance of all the mines of this county in 1903, their output was curtailed by an underground fire in the old Eureka Hill workings that filled the Centennial-Eureka, Eureka Hill, Bullion-Beck, and Gemini with gas and smoke and caused a cessation of work for several weeks. In this county is located the greatest number of producing properties contained in a single section of the State. Chief among these in point of production, men employed, and general operation not already mentioned, were the Uncle Sam Consolidated, Mammoth, Lower Mammoth, Ajax, Grand Central, Carisa, Yankee, and Godiva.

PIUTE COUNTY.

Metal.	Fine ounces.	Value.
Gold	20, 762. 60	\$429, 201. 03
Silver	67, 109. 14	86, 767. 37
Total.....		515, 968. 40

The principal producer in 1903, located in this county, was the Annie Laurie Mining Company, situated on Gold Mountain. The values from the ores mined by this company are recovered by the employment of the cyanide process. About 100 men are constantly employed in the mine of this company. Considerable prospecting and general activity are manifest around Kimberly and Marysvale, and new producers of gold and silver in this county may be anticipated in the near future.

SALT LAKE COUNTY.

Metal.	Quantity.	Value.
Gold.....fine ounces..	44, 427. 157	\$918, 390. 84
Silver.....do....	1, 215, 252. 84	1, 571, 235. 99
Copper.....pounds..	11, 589, 132. 00	1, 533, 821. 62
Lead.....do....	2, 680, 976. 00	113, 592. 95
Total.....		4, 137, 041. 40

The principal points of production in this county were the districts at Bingham and Bingham Cañon. That these districts are destined to maintain a large production of copper is the well advised opinion of all who are acquainted with the resources of these regions. The transportation facilities to and from the mines admit of a very low cost of production and treatment. The close of the year also saw the completion of the new Yanpa smelter in Bingham Cañon.

SUMMIT COUNTY.

Metal.	Quantity.	Value.
Gold.....fine ounces..	15, 825. 230	\$327, 136. 53
Silver.....do....	7, 110, 850. 12	9, 193, 826. 42
Copper.....pounds..	3, 597, 101. 00	476, 076. 32
Lead.....do....	77, 753, 945. 00	3, 294, 434. 65
Total.....		13, 291, 473. 92

The mining section of this county is centered about Park City, the leading mine in 1903 having been the Silver King, followed in the order named by the Daly-West, Daly-Judge, Nail Driver, Ontario, and Creole. This is a silver-lead producing region from which the product as mined, or as the result of concentration, is shipped to the smelters of the Salt Lake Valley. While the improvement already noted for 1903 in the prices of silver and lead added great activity to this region, large amounts of outside money were also spent with highly gratifying results in prospecting and developing new properties. The future is therefore particularly bright.

TOOELE COUNTY.

Metal.	Quantity.	Value.
Gold.....fine ounces..	60,729.195	\$1,255,383.88
Silver.....do.....	232,279.97	300,321.58
Copper.....pounds..	958,208.00	126,818.83
Lead.....do.....	2,731,638.00	117,841.35
Total.....		1,800,365.64

The mining section of this county includes the districts of Mercur, Ophir, Stockton, Ibapah, and Deep Creek. At the mill of the Consolidated Mercur, at the camp of Mercur, a new process, known as the "Moore process," was introduced during the past year. This process was designed by the inventor to meet the slimes difficulty in cyaniding, by which probably 90 per cent of those ores are affected. The methods at present in vogue for the treatment of slimes are the only ones attempted in a large way. The Moore filters in operation at the Consolidated Mercur mill consist of a series of parallel plates, 4 inches apart. Each plate is 20 feet long and 4 feet high, and is a light framework with canvas on both sides. A suction pipe passes through the top at the center, down to within one-half inch of the bottom, while two blowing pipes also center at the top, each one halfway between the center and the ends and extend barely through the top. Eighteen of these parallel plates are firmly attached to channel irons crossing their tops, thus forming one basket of filters; that is, one unit. We have thus in one machine a total filtering surface of 2,880 square feet. On top of these plates and connected to their suction pipes by a 3-inch cross-header pipe rests a large vacuum pump of the Dean pattern. The whole basket hangs by 8 wire cables from an electric crane, which raises and lowers the basket and carries it from one compartment of the tank to the other. The tank has three compartments, containing slimes, weak cyanide solution, and wash water. Just beyond the wash-water compartment is the discharge point, simply an open space, under which the tailings cars stand to receive their load. In operation the filter basket is lowered in the slimes compartment and the vacuum pump is started. The slimes are agitated to prevent settling. After the suction has proceeded for from one to two hours, varying with the character of the slimes and the thickness of the emulsion, there is a coating of slimes on all parts of the filtering surface of from three-quarters to 1 inch in thickness, representing from 9 to 12 tons of slimes, dry weight. The motor on the crane is then started and the basket with its load is lifted out of the slimes compartment. The crane

is then moved along its track until over the weak cyanide compartment and the basket is lowered. Twenty minutes in this tank and ten minutes in the wash-water tank is sufficient for a complete displacement of the valuable solutions. During all this time the pump is in operation and the vacuum produced prevents the cakes from dropping off during the transferring. Having arrived at the discharge point, the vacuum pump is stopped and a blast of air turned into a pipe connecting with the blowing pipe of each plate. The air passes through the cloth from within the plates, dislodges the slime cakes, and they drop at once into the cars below. The advantages of this system are a saving in labor, a closer saving of the values, and a saving in the cost of installation. The success of this process will undoubtedly put the Consolidated Mercur more to the front, and a large increase in production may be looked for in 1904.

The Honerine tunnel in process of construction at Stockton is one of the largest and most important engineering undertakings in Utah. The object of its construction includes the extraction of ore from the mine of that name and other properties, the draining of the entire camp, the use of the water for concentration and also for irrigating a vast area in this county. The length of the tunnel when completed will be about 2 miles, a little more than one-half of this being already done. The inner dimensions of the tunnel in the clear are 4 feet at the top and 6 feet at the bottom, with a vertical measurement of 6 feet 8 inches. Among the properties to be benefited besides the Honerine are the Cygnet Cyclone, Black Diamond, Galena King, and others.

The statistical tables of the Utah production that appear in connection with this review for the year 1903, showing the quantity and value of the production of the precious metals in the State, their origin by classes and counties, together with the final disposition of the ores and bullion for treatment and sale, have been assembled from confidential returns furnished by the producers and also from the reports furnished by the different United States mints and assay offices and by the various smelting and refining companies that handled the product.

The following tables show the origin by percentages, of the gold and silver won in 1903 from the various classes of Utah ores, the deposits of each at the United States mints and assay offices, and a final résumé of the disposition of the entire output of the gold and silver:

ORIGIN, BY PERCENTAGES, OF THE PRODUCTION OF GOLD AND SILVER IN UTAH
DURING THE CALENDAR YEAR 1903.

Origin.	Gold.	Silver.
	<i>Per cent.</i>	<i>Per cent.</i>
Quartz and dry ores.....	1.58	1.73
Cyaniding ores	42.98	.60
Lead ores	10.24	69.91
Copper ores.....	39.22	27.06
Milling ores.....	5.98	.70
Total.....	100.00	100.00

BULLION OF UTAH PRODUCTION DEPOSITED AT THE UNITED STATES MINTS AND
ASSAY OFFICES DURING THE CALENDAR YEAR 1903.

Institution.	Gold.		Silver.	
	Standard ounces.	Value.	Standard ounces.	Coining value.
Mints:				
San Francisco, Cal.....	1,708.110	\$31,778.79	1,564.18	\$1,820.13
Denver, Colo.....	6,345.402	118,053.99	1,573.45	1,830.92
Assay office:				
New York, N. Y.....	60,247.940	1,120,891.91	3,717.38	4,325.67
Total.....	68,301.452	1,270,724.69	6,855.01	7,976.72

DISPOSITION OF THE GOLD AND SILVER OF UTAH PRODUCTION DURING THE CALENDAR
YEAR 1903.

Disposition.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Coining value.
Deposited at the United States mints and assay offices.....	61,471.307	\$1,270,724.69	6,169.51	\$7,976.72
Shipped to custom smelters and refin- eries by producers.....	130,622.842	2,700,213.79	11,808,762.69	15,267,895.21
Total.....	192,094.149	3,970,938.48	11,814,932.20	15,275,871.93

WASHINGTON.

By FREDERICK A. WING,

Assayer in charge United States assay office, Seattle, Wash.

The value of the precious metals produced in Washington during the calendar year 1903 was \$862,443.76, as shown in the following table:

Metal.	Quantity.	Value.
Gold.....fine ounces..	21,592.877	\$446,364.38
Silver.....do.....	305,401.03	^a 394,861.93
Copper (at \$13.235 per cwt.).....fine pounds..	91,441.00	12,102.22
Lead (at \$4.237 per cwt.).....do.....	215,134.00	9,115.23
Total.....		862,443.76

^a Coining value.

Compared with the production for the calendar year 1902, a net decrease is apparent in the output of the State for 1903. There was an increase of over 3,000 fine ounces of gold, occasioned by the increased output of the mines in Ferry and Whatcom counties; however, this was more than offset by the decrease in the silver produced, owing to the closing down or limited operations of the silver-lead mines, principally due to the low price of silver.

PRODUCTION OF PRECIOUS METALS IN THE STATE OF WASHINGTON DURING THE CALENDAR YEAR 1903 COMPARED WITH THAT OF 1902:

Metal.	1902.		1903.	
	Quantity.	Value.	Quantity.	Value.
Gold.....fine ounces..	18,115.019	\$374,470.66	21,592.877	\$446,364.38
Silver.....do.....	721,450.16	932,784.04	305,401.03	^a 394,861.93
Copper.....fine pounds..	40,426.00	4,699.93	91,441.00	12,102.22
Lead.....do.....	242,516.00	9,867.98	215,134.00	9,115.23
Total.....		1,321,822.61		862,443.76
Net decrease.....				459,378.85

^a Coining value.

The counties contributing to the metallic wealth of the State were Asotin, Chelan, Ferry, King, Kittitas, Okanogan, Snohomish, Stevens, and Whatcom. Ferry, Snohomish, and Whatcom counties produced most of the gold, and Ferry, Snohomish, and Stevens nearly all of the silver.

ASOTIN COUNTY.

In Asotin County a small amount of placer gold was obtained from the bars along the Snake River.

CHELAN COUNTY.

Peshastin district.—The gold and silver producing mines in Chelan County are located in this district in the southern portion of the county, and are owned by the Badger State Mining Company and the La Rica Mining Company. The property of the Badger State Mining Company is that formerly owned by the Chelan Mining Company, and includes the Old Warrior General mine. The intention of this company is to increase the present plant and operate on a larger scale than was done formerly. The La Rica Mining Company, which owns the Peshastin, Black Jack, and Keynote claims, has increased the capacity of its mill and will shortly install a new process for the treatment of its ores.

Stehekin district.—It was stated by an officer of the Crown Point Mining Company that about 2 tons of molybdenite were produced by the company's mine located in this district in the northern part of the county. The company values this product at \$2,000 a ton.

FERRY COUNTY.

Owing to the varying character of the ores, necessitating frequent changes in the methods of treatment, and the lack of proper transportation facilities, the mines of this county capable of production were not operated continuously prior to 1903.

Republic district.—During the year 1903, however, the Mountain Lion Mining Company installed the new Hendryx process for the treatment of the ores of the Mountain Lion mine, located in this district. The installation of the new process necessitated the purchase of new crushing machinery, and other changes to be made. It is claimed that the ores of this district can be treated by the Hendryx system of agitation at a cost of \$1.50 per ton and a saving of 86 per cent of the values. This comparatively low cost as against the charge of \$6 per ton now exacted by the smelters, together with increased transportation facilities, bids fair to solve the question of profitable mining in the district, and should give new life to its mining industry. The Quilp Gold Mining Company shipped steadily during the year, the ores averaging 0.422 in gold and 5.1281 in silver. This mine is developed to a depth of 700 feet, with a total underground workings of 4,500 feet, and is well equipped with modern machinery. The mines in the district yielded nearly \$500,000 during the year 1903. The principal producers were the Quilp Gold Mining Company, Mountain Lion Gold Mining Company, Lone Pine-Surprise Consolidated Mining Company, and North San Poil Mining Company. Other producers during the year were the Morning Glory Gold Mining Company, Tom Thumb Gold Mining Company, and Apollo Consolidated Gold Mining Company.

KING COUNTY.

Money Creek district.—Considerable development work was done by the Kimball Creek Mining Company and the Apex Mining Company on their properties located in this district, in the northern part of King County. The Kimball Creek Mining Company's property consists of low-grade ore, and the owners do not expect it to rank as a producer for at least a year. The Apex Mining Company made several shipments of ore to the Tacoma and Everett smelters during the past year; the ore carried about 10 per cent lead.

KITITITAS COUNTY.

Swauk district.—The contribution of Kittitas County to the production of the State comes from the auriferous gravel deposits in this district. The following mines were known producers for the year: Weniger placer mine; Yakima-Swauk Mining Company; Livingstone placer mine; Cedar Valley Gold Mining Company; Cascade Mining Company; and the Barber placer mine.

Cle-Elum district.—Reports from this district state that lack of proper transportation to the smelters for the ores of the district is the reason why the mines there were not producers.

OKANOGAN COUNTY.

Owing to various reasons—lack of transportation chiefly—many of the mines in this county did not operate, or, at best, were but small shippers during the past year.

Loomis district.—The Similkameen Power and Development Company has nearly completed its plant, which will be one of the most extensive in the State. This company controls the Ruby group and the Six Eagles mines, on which active operations were prosecuted during the past year. The tunnel on the Six Eagles mine was driven some 1,800 feet, and is still being extended. The Ruby mine shipped about 5 cars of ore, hand sorted, during the year, and made a test mill run, using the Golden Zone mill; the ore was principally silver. The Grand View mine was developed during the year, and the owners expect to put in a 20-stamp mill soon. The foregoing properties are all well developed. On the Security mine several rich strikes were made, but no shipping was done. The Pinnacle mine took out some high-grade free-milling ore, utilizing the old mill on the Black Bear mine at Loomis. The Golden Zone mine was idle during the year.

ORIGIN OF THE GOLD AND SILVER PRODUCED IN THE STATE OF WASHINGTON DURING THE CALENDAR YEAR 1903.

Origin.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Placer	1,000.00	\$20,671.83	250.00	\$323.23
Quartz	20,515.377	424,090.48	156,536.70	202,390.88
Copper ores	25.00	516.80	5,000.00	6,464.65
Silver-lead ores	52.50	1,035.27	143,614.33	185,683.17
Total.....	21,592.877	446,364.38	305,401.03	394,861.93

BULLION OF WASHINGTON PRODUCTION DEPOSITED AT THE UNITED STATES MINTS AND ASSAY OFFICES DURING THE CALENDAR YEAR 1903.

Institution.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Mints:				
Philadelphia.....	435.472	\$9,002.00	154.67	\$199.98
San Francisco.....	108.835	2,249.82	13.70	17.71
Assay offices:				
Boise.....	156.522	3,235.60	38.12	49.29
Helena.....	1,703.003	35,204.20	668.94	864.89
Seattle.....	6,070.795	125,494.47	259.36	335.33
Total.....	8,474.627	175,186.09	1,134.79	1,467.20

DISPOSITION OF GOLD AND SILVER PRODUCED IN WASHINGTON DURING THE CALENDAR YEAR 1903.

Disposition.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Coining Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Deposited at the United States mints and assay offices.....	8, 174. 627	\$175, 186. 09	1, 134. 79	\$1, 467. 20
Shipped to custom smelters and refineries by producers.....	13, 118. 250	271, 178. 29	304, 266. 24	393, 394. 73
Total.....	21, 592. 877	446, 364. 38	305, 401. 03	394, 861. 93

Palmer Mountain district.—Extensive development work was done on the mines in this district, but no shipments were made during the year.

Myers Creek district.—The placers in this district, located in the extreme northeastern part of Okanogan County, contributed their usual quota to the output of the State. Among those producing during the year were the Hollander placer mine and the Cracker Jack placer mine. The Bodie Mining Company shipped 1 car of ore averaging \$83 per ton, in gold, from the Bodie mine located in this district. The company intends to erect a mill on this property in a short time; the ground has already been cleared for the site.

Conconully district.—At the Q. S. mine, a low-grade copper property, crosscutting and other development work was done that gave increased depth to the property, but no shipments were made during the year.

Nespelem district.—Considerable prospecting and development work was done during the year in this district, which is located in the southern portion of the Colville Indian Reservation. The principal properties are the Great Northern mine, a silver-lead property; Multnomah mine, a gold and silver property, and the Apache group.

In the Meteor Camp, which is the old Beulah district, the Meteor mine produced a considerable quantity of ore during the year, which is now awaiting steamer transportation to the smelter. More or less development work was done on the White Swan, Horseshoe, Stray Dog, and the Syndicate properties located in this district.

SNOHOMISH COUNTY.

The production of this county for the year 1903 came principally from the Monte Cristo mines, in the Monte Cristo district. Owing to litigation, lack of transportation, installation of new processes for the treatment of ores, erection of new mills, and the closing down of the Everett smelter during part of the year, many of the mines in the county were closed down completely, or partially, or did development work only, during the past year.

STEVENS COUNTY.

This county, the greatest silver-producing county in the State, did not add its usual proportion to the State's output for 1903. Many of its silver-lead mines were either shut down or operated in a limited capacity, principally due to the low price of silver.

Springdale district.—Compared with the preceding year, the mining industry of this district for 1903 shows a material decrease, which will account for the large falling off in the silver output of the State. The Providence mine was a producer during the year. Some 8 or 10 cars were shipped from the Silver Seal and the Queen properties, owned by W. O. & L. E. Van Horn. The Deer Trail properties, consisting of the Legal Tender, Elephant Lode, Deer Trail No. 1, and Deer Trail No. 2 mines, were operated under lease in a limited manner and, consequently, report a small output as compared with their operations for former years. The ore from these properties carried about 6 per cent lead.

Newport district.—Considerable development work was done on the Conquest mine in this district, consisting of a double compartment shaft being put down, and the vein crosscut at the 100 and 200 foot levels; several new buildings were erected, and the following machinery installed: 100-horse power engine and boiler, 7 drill Rand compressor, 2 Knowles sinking pumps, and a hoist. Considerable work was done on other properties in this district, but nothing in the way of actual production.

Chewelah district.—The Eagle Consolidated Mining Company and the Jay Gould Mining Company, both produced in a limited way during the year. Operations were resumed on the Kemp-Komer properties at Loon Lake, and it is reported that a large body of paying ore was uncovered.

Old Dominion district.—The Old Dominion mine in this district contributed to the State's output of silver and lead for the year.

Pierres Lake district.—This district is on the Colville side of the Toulou Mountain. The principal properties there are the Orient, Little Giant, and First Thought. The Orient is equipped with steam power sufficient to do its hoisting and run its drills, and it is claimed has some very good ore in sight. Development work was done on the Little Giant mine, and its ore bodies were exploited with a diamond drill. The owners claim they have a large body of high-grade ore.

WHATCOM COUNTY.

Mount Baker district.—By the advent of the mines in this district into the ranks of the producing mines of the State, Whatcom County has become an important factor in the State's production of gold. During the year 1903 the mines of Mount Baker Mining Company and the Great Excelsior Mining Company, located in this district, came to the front with material productions of gold and silver. The Mount Baker Mining Company did not get its mill running until late in the year, or the yield from this district would have been greater. The Mount Dewey Mining and Milling Company erected a stamp mill on its property in the district and intends to commence crushing ore in a short time.

Slate Creek district.—The Mammoth Gold Mining Company was the only producer in this district during the past year. Its product was shipped in the shape of mill bullion to the United States mints. The Gold Prize Group of mines was sold to the Chancellor Gold Mining Company. This company has commenced the erection of a quartz mill, is developing the property, and expects to add to the State's production for next year.

WYOMING.

By FRANKLIN R. CARPENTER, Ph. D., F. G. S. A.,

Mining and metallurgical engineer.

	Fine ounces.
Gold	400. 888
Silver	826. 170

ENCAMPMENT.

The principal product is copper, but as this carries small quantities of gold and silver, recovered in the electrolytic refining, I have kept in touch with their operations.

The Ferris-Haggerty is the principal mine of this district. It has been producing high-grade ore since 1899, and is still producing, both the mills and smelter being in full operation at this time, so that their output for 1904 will greatly exceed that of 1903, during which, for various reasons, the mine was operated only in a small way. The predominant metal of this section will probably always be copper, but in addition to the small quantities of gold and silver won with the copper, quartz veins carrying gold and small veins of silver-lead ores have been discovered.

The occurrence of the rare metals of platinum and palladium in this section has been noted in former reports.

BEAR GULCH AND NIGGER HILL.

This is a gold and tin section occurring in that part of the Black Hills lying west of the South Dakota line. It has produced placer gold from the discovery of gold in the Black Hills in 1874, but lode veins and cement veins, similar to the near-by deposits at Deadwood and Lead, in South Dakota, also occur, and much prospecting has been done. In the placer mining stream tin of no inconsiderable quantity is caught in the riffles with the gold.

SOUTH PASS.

This section dates from 1867 when the mining camp located at the southern end of the Wind River Mountains sprung into existence. At one time it contained some 4,000 people, but with the exhaustion of the small placers they left for other fields.

The principal lode claim is the Carissa, which during the year added to its ore reserves but, so far as I can find, not to the output of gold. The mine is opened to a depth of nearly 400 feet and operates a 20-stamp mill. The gold is, of course, not so free-milling as in the upper

workings and the free-milling process will require following with concentration and, perhaps, chlorination of the concentrates, which would seem to be the proper method. Cyanide has been tried upon the raw tailings with indifferent results, showing that the gold is in a condition requiring a preliminary roasting. If it is not desirable to chlorinate the concentrates as here indicated and as was formerly done, at the Treadwell, in Alaska, and is yet employed in California, they could doubtless be sold direct to the smelters.

The Miner's Delight mine, at Miner's Delight, the Rose mine, at Atlantic, the Burr, at Lewistown, have all shown a similar class of ores, rich at the surface, but needing some process other than free-milling. Many ore bodies carrying from \$8 to \$10 per ton are reported to exist and in quantities that must, sooner or later, be worked at a profit.

The Dexter Mining Company owns and operates about 1,000 acres of placer ground upon Rock Creek, as well as numerous undeveloped lode claims, showing fair outcrops. For the latter they are driving a crosscut tunnel, while the former is developed and worked by water brought from the lakes in the Wind River Range, some 25 miles distant.

OTHER DISTRICTS.

Prospecting, with the discovery of ores of paying values, continues in many sections and reduction works are projected. Schnitzel and Moody, of Deadwood, have continued the development of their great consolidation of mining claims. The Sunlight district, located north and west of Cody, is certainly one of great promise, and fully noted in my last report. The interest in this continues.

CONCLUSION.

The study of Wyoming by the writer has convinced him of its great prospective mineral value. It is so located as to be off of the main lines of travel, and having no great bonanzas, if we except the Ferris-Haggerty, it never has had a mining "boom," which while often disastrous to the individual, frequently results in great and permanent good to a given section. There has never been a really great placer excitement in Wyoming, which usually leads to the discovery of permanent lode mines, which were the original sources of the placer gold, though some of the richest gold mines in the world gave no evidence of their existence by the formation of placers, Cripple Creek and Mount Morgan being examples. The development of the copper mines of Wyoming will indirectly bring about the development of the gold and silver mines of the States. The recent work done by the Government in the study of the pre-Cambrian rocks of southern Wyoming will result in great good. It is the first detailed study of such rocks south of Montana.

As a by-product in the production of copper, if in no other way, the gold output for 1904 can not fail to exceed that of 1903.

PART III.

PRODUCTION OF GOLD AND SILVER IN FOREIGN COUNTRIES.

PRODUCTION OF GOLD AND SILVER IN FOREIGN COUNTRIES.

[Arranged geographically.]

NORTH AMERICA.

BRITISH NORTH AMERICA.

According to the Preliminary Summary of the Mineral Production of Canada for 1902, published by the geological survey, British North America in that year produced gold to the value of \$18,834,490, equivalent to 911,118 fine ounces. Of this amount \$12,250,000 are attributed to the Yukon, and \$6,584,490 to the other provinces. The silver yield amounted to \$1,700,779, equal to 3,149,591 fine ounces.

Following is a comparison of the figures for 1902 with those of 1903:

Province.	1902.	1903.
Gold:		
Yukon	\$14,500,000	\$12,250,000
All other.....	6,241,245	6,584,490
Total.....	20,741,245	18,834,490
Silver	2,280,957	1,700,779

The shrinkage in the production of the Yukon placer gold fields accounts for \$2,250,000 of the total diminishment of over \$2,500,000 in the gold output of the country. There was, therefore, a falling off in other provinces of approximately \$250,000. The Yukon output for the year—\$12,250,000—is based on receipts of Canadian Yukon gold at the United States mint at San Francisco and other receiving offices.

The silver production, according to present indications, shows a considerable decrease—over 1,000,000 ounces—compared with last year’s output. Over 90 per cent of the production is obtained from British Columbia.

According to reports from the several provinces, the production was as follows:

Province.	Gold.	Silver.
Yukon	\$12,113,015	
Ontario	188,036	\$8,942
British Columbia	5,873,036	1,521,472
Nova Scotia.....	478,762	
Newfoundland.....	3,000	
Total.....	18,655,849	1,530,414

Between these totals and those given in the Preliminary Summary there are discrepancies of \$178,641 in the case of gold, and of \$167,365 in that of silver. These differences, however, are doubtless represented by the product of districts from which this Bureau has thus far received no special reports covering the year under examination, consequently the figures given in the summary are adopted.

The following data regarding the production of the precious metals in Canada are derived from the report of the superintendent of mines of the Dominion of Canada for the year ended June 30, 1903:

Gold bullion to the amount of \$12,113,015.34 was exported from the Yukon territory during the fiscal year ended June 30, 1903. The ports of export, and value of bullion corresponding to them, are as follows:

Dawson.....	\$12,081,594.84
Whitehorse.....	24,799.50
Fortymile.....	6,621.00
Total.....	12,113,015.34

This would represent 585,967 fine ounces, an increase, as compared with the outturn of 1902, of 123,195 fine ounces, the yield that year having been 462,772 fine ounces.

The value of gold produced there last year was greater than in any other year, the next best having been in 1899-1900, when the production amounted to \$9,809,464.64. The large output of last year is attributed to an unusually rainy season, owing to the fact that a large amount of the pay dirt is removed by hydraulic methods.

BRITISH COLUMBIA.

The annual report of the minister of mines for the year ending December 31, 1903, contains the following particulars regarding the production of the precious metals in British Columbia in that year:

The placer gold production of the Province for the year 1903 was \$1,060,420, a decrease of about \$12,720, or 1 per cent from that of the year 1902, but still showing an increase over 1901 of \$90,320.

The production of gold from lode mines has this past year amounted to \$4,812,616, a decrease of 1½ per cent as compared with that of 1902.

In British Columbia silver and lead must be considered together, for even in the present depressed condition of the market about 70 per cent of our silver output is derived from silver-lead ores. The total output of silver for the past year amounted to 2,996,204 ounces, valued at \$1,521,472. Of this amount about 2,103,000 ounces, valued at \$1,067,903, was found associated with lead.

From the above it appears that in 1903 British Columbia produced 284,108 fine ounces of gold of the value of \$5,873,036, a decrease compared with the yield of 1902 of \$88,373, or 4,275 fine ounces.

Silver to the value of \$1,521,472 was produced; this would represent, at 54 cents per ounce, 2,817,540 fine ounces, which was 845,343 ounces less than the preceding year's output.

British Columbia up to and including 1903 has produced placer gold to the value of \$65,688,103, and lode gold to the amount of \$26,862,348—a total of \$92,550,451. In the placer gold is a small percentage of silver, the value of which being slight, has not been deducted from the total. The silver product up to the present has amounted to \$19,997,354.

NOVA SCOTIA.

According to the report of the department of mines of Nova Scotia for the fiscal year ending September 30, 1903, that country during that

period produced 25,198 ounces of gold derived from 92,645 tons of ore; the yield therefore was 5 pennyweights 11 grains per ton. The product, at \$19 per ounce, would be worth \$478,762, which would represent 23,160 fine ounces. The corrected figures for 1902 are 25,992 fine ounces, consequently there was a decrease in production in 1903 as compared with the preceding year, of 2,832 fine ounces.

From 1862 to 1903, inclusive, Nova Scotia produced 1,554,308 tons of ore, which yielded 804,873 ounces of gold, worth, at \$19 per ounce, \$15,292,587, which would represent 739,778 fine ounces; the yield therefore was 0.919 fine.

NEW FOUNDLAND.

The London Mining Journal, Railway, and Commercial Gazette, of July 16, basing its statement on the report of the geological survey of Newfoundland, says that in 1903 that country produced 1,000 tons of quartz which yielded \$3,000 worth of gold, equivalent to 145 fine ounces.

ONTARIO.

Under date of March 22, 1904, United States Consul H. S. Culver, of London, Ontario, transmits a statement issued by the bureau of mines, showing the gold and silver production of the Province of Ontario during the year 1903 to have been: Gold, 10,383 ounces; value, \$188,036. Silver, 16,868 ounces; value, \$8,942.

MINERAL PRODUCTION OF BRITISH COLUMBIA.

[From The Board of Trade Journal, London, July 28, 1904.]

PLACER GOLD.

The placer gold production of the Province for the year 1903 was \$1,060,420, a decrease of about \$12,720, or 1 per cent from the year 1902, but still showing an increase over 1901 of \$90,320. The Atlin and Laird divisions of Cassiar are the only districts which this year show an increased production of placer gold. In the former division the increase has been obtained chiefly from the working by improved methods and, on a larger scale, of an old high channel found in the benches of Pine and Spruce creeks. The productive work in this district is still largely in the hands of individual miners or small partnerships of such, as is indicated in the report of the gold commissioner of the district, who says that about 75 per cent of the royalty has been paid by individuals and only 25 per cent by companies.

LODE GOLD.

The production of gold from lode mines has this past year amounted to \$4,812,616, a decrease of 1½ per cent as compared with that of 1902. There has been a serious falling off in the production of the Rossland and Nelson districts, which has, however, been met by a corresponding increase in the Coast, Boundary, and the Trout Lake, and Lardeau districts.

The lode gold has been derived approximately as follows:

From direct smelting of copper-gold ores	\$4, 327, 206
From combined amalgamation and concentration	485, 410
Total	4, 812, 616

SILVER AND LEAD.

In British Columbia these two metals must be considered together, for even in the present depressed condition of the market, about 70 per cent of the silver output is derived from silver-lead ores. The total output of silver for the past year has amounted to 2,996,204 ounces, valued at \$1,521,472. Of this amount about 2,103,000 ounces, valued at \$1,067,903, was found associated with lead.

In the Forte Steel mining division less than 1,000 tons of lead ore were mined in 1903, as compared with 87,000 tons in 1900.

In the Slocan mining division only about half the usual tonnage of ore was produced.

Ainsworth mining division mined much more ore than formerly and produced 30 per cent more lead than usual, which was, however, the result of the concentration of a very low-grade ore of the Highland mine.

Silver-lead mining in British Columbia, except for those ores carrying high silver values, has been at a very low ebb for the past two years; in fact most of the lead mines carrying low silver values suspended operations, the owners claiming they could not be worked at a profit under existing circumstances.

Strong representations were made to the Dominion government of these facts, and application made for a bounty on lead mined in Canada. This application was granted at the last session of the Dominion Parliament. The bounty awarded amounts on a 30 per cent ore to \$4.50 per ton of ore mined, a fairly good profit in itself, which should revive any lead mine and enable it eventually to work unassisted when the bounty expires.

QUESNELLE FORKS MINING DIVISION OF BRITISH COLUMBIA.

A DESCRIPTION OF A GREAT PLACER MINING REGION AND THE DEVELOPMENTS THAT HAVE BEEN MADE.

[Written for Mines and Minerals, by W. M. BREWER.]

Placer gold was first discovered in commercial quantity in British Columbia on Hills Bar, on the Fraser River, in 1858, by a party of prospectors from California which had been attracted toward that section through reports which had reached San Francisco that Indians had brought gold dust into the Hudson Bay forts. A considerable number of stampeders was soon after prospecting the bars of the Fraser River and, following up that stream, many of them worked their way into the Cariboo Mountains, a range situated to the westward of the main Selkirk Range and considered by Doctor Dawson, the late Dominion geologist, to form a portion of the Selkirk Mountains.

The Cariboo Mountains are situated in a northerly direction from Ashcroft on the main line of the Canadian Pacific Railway, distant 202 miles east from Vancouver. The southern portion of the Cariboo Mountains is about 200 miles from Ashcroft, which has been for some years past the starting point for the mines. The northern portion of the Cariboo Mountains is about 100 miles farther distant, and the entire district forms a portion of the watershed of the Fraser River, being drained by the Quesnelle, Cottonwood, and Willow rivers, tributaries of the Fraser. These rivers all rise in the Cariboo Mountains, having their sources in lakes, the most important of which are Quesnelle, Cariboo, Horse Fly, and Stillwater. Besides these, there are a large number of smaller and less important lakes which form the sources of streams tributary to the larger rivers already mentioned.

Of the lakes, Quesnelle is by far the largest, being navigable the entire length of the main lake, as well as the north and east arms, a total distance of about 180 miles.

The estimated yield of placer gold for the year 1858 was \$705,000, and of the total yield for British Columbia the Cariboo mines have produced up to the present day a very large proportion of the \$64,627,683, which has been the total production to the end of the year 1902, according to the minister of mines' report.

Williams Creek has been the greatest producer, its total yield being estimated at nearly \$5,000,000. Of the other streams which have produced placer gold in this district the most important are the Horse Fly, North and South forks and main Quesnelle rivers, and Keithley, Lightning, and Slough creeks. The principal camps in the district are Barkerville, Richfield, Keithley Creek, Quesnelle Forks, Bullion, and Harpers.

I have recently visited that portion of the district lying contiguous to Quesnelle Lake and comprising the Quesnelle River, with both its forks and tributaries, as well as the Horse Fly River, which empties into Quesnelle Lake from the southeast.

The geology of the portion which I visited is quite complicated. There are representatives among the rocks of the Paleozoic and Tertiary periods (see the late Doctor Dawson's reports). The sedimentary shales and conglomerates occupy by far the greater area of this portion of the Cariboo district and except where intrusive dikes of igneous rocks occur form the bed rock of both the Quesnelle and Horse Fly rivers. At a point about 16 miles east from Quesnelle Forks a garnetiferous schist occurs

which has been classified by the late Doctor Dawson as the Cariboo schist. This bears a striking resemblance to some of the gold-bearing schists which occur in Clay County, Ala., in the Appalachian Mountain system.

On Mussel Creek, a tributary of the Horse Fly River in the southern portion of the gold-bearing area, a basaltic rock occurs overlying a stratum of white quartz gravel. This same class of eruptive rock apparently covers quite an extensive area to the south and east from Mussel Creek, for the stage road from Ashcroft passes over the same class of rock for a considerable distance, but at no point other than near the falls on Mussel Creek has the occurrence of white quartz pebbles underlying this rock been observed. Near the Sixty-one Mile House on the stage road an enormous chasm about 2,000 feet in width and in places nearly 1,000 feet in depth has been eroded, the walls of which are composed of basaltic rock which, at a casual glance, can easily be mistaken at a distance for a sedimentary rock, owing to the fact of the peculiar discolorations which give the impression of stratification, but a closer examination proves that such an impression is erroneous.

One of the most interesting of the geological features characteristic of the Quesnelle and Horse Fly camps is the system of ancient river channels which have partially been traced out by prospectors and hydraulic miners, who had become familiar with such conditions in California. The extent of the gold-bearing gravel deposits in these ancient river beds is phenomenal, and the average value in the gravel per cubic yard, as demonstrated by actual working on a large scale, is much higher than the average value in such gravel in California. It is no uncommon thing to see a bank of gravel with its face 500 feet in height where exposed either by nature or hydraulic mining. Notable instances of these conditions were observed near the mouth of Morehead Creek, one of the tributaries of the main Quesnelle River; also along the north side of the North Fork of the same river, and along the south side of the South Fork; also on Spanish Creek, a tributary of the North Fork; Four-Mile Creek, a tributary of the main river, and on the Horse Fly River. Some of these ancient channels reach a great depth below the present channels of the modern streams, while in some of them the bed rock is at a higher altitude by 70 or 80 feet than the bed rock of the modern streams.

Instances of the former condition are found at the property of the Miocene Mining Company and on the Ward claims on Horse Fly River. The same characteristics are found to occur on Spanish Creek about half a mile above its confluence with the North Fork of the Quesnelle River. The most notable instance observed where the bed rock of the ancient river is higher than that of the modern stream is on the property of the Consolidated Cariboo Hydraulic Mining Company, on the South Fork of the Quesnelle River.

A feature peculiar to the north side of the North Fork of the Quesnelle River is that up to the present time bed rock has never been reached, although shafts have been sunk with that end in view. One of these is located at the mouth of Kangaroo Creek, one of its tributaries having its confluence about a mile above the forks. Here a depth of 60 feet was reached, through boulder clay, with no indication of bed rock, and work had to be suspended because of the great quantity of water. On the Horse Fly River, in an ancient channel which apparently nearly parallels the modern one, the Miocene Mining Company sunk a shaft 480 feet, and even at that depth the rim rock only was intersected and found to be still dipping. This shaft was sunk through white quartz gravel, and the rim rock is apparently the same shale as forms the bed rock of the modern channel.

These ancient channels can be traced by observing the occurrences of the rim rock on either side and noting the outlets into the modern streams, or else by following the present beds of the smaller creeks and gulches which often crosscut gravel deposits belonging to ancient channels. During the early Cariboo days the bars and benches along the modern streams, as well as the beds of the gulches of the larger rivers, as far as was practicable by the construction of wing dams, were mined out to bed rock, but in many places, even to-day, Chinamen can be found sluicing the old tailings and earning wages.

* * * * *

GOLD AND SILVER OF ONTARIO.

[From Report of the Bureau of Mines, 1904, Toronto.]

The output of gold and silver for 1903, as returned to the bureau of mines, was 10,383 ounces of bullion, worth \$188,036, a considerable decrease from the yield for 1902, when it was 13,625 ounces, valued at \$229,828. The product of the gold mines

of the Province has in fact been growing less year by year since 1899, when at the sum of \$424,568 it reached the highest point yet recorded.

The causes for this continued decline are various, and allusion has been made to them in previous reports. The gold ores of Ontario are in the main, so far as yet proven, low grade in character, and to be made to yield a profit must be worked on a considerable scale and by companies with sufficient capital and confidence to expend large sums of money in thoroughly proving and developing their properties before looking for large returns. The bane of gold mining in the Province has been the excessive haste of many engaged in it to produce bullion, the effort to do so leading them to lay out their capital upon stamp mills and works above ground before sinking on their veins and demonstrating by drifts and levels that the values contained in the lode warranted the erection of a surface plant. Time and again funds have been exhausted before the existence of payable ore bodies was either proven or disproven, and discouraged shareholders have refused to make further contributions toward what appeared to be a doubtful or hopeless cause. Had the natural and legitimate course been adopted of blocking out ore reserves before putting up expensive surface plants not so many decaying stamp mills would now be disfiguring the gold districts of western Ontario, and those districts would be in better repute.

* * * * *

There is good ground for believing that the free-milling ores of this Province, offering as they do no special difficulties of treatment, will yet be mined and crushed at a profit by companies whose operations are superintended by men of skill, experience, and technical training.

* * * * *

GOLD MINING IN NOVA SCOTIA.

[By E. R. FAIRBAULT, of the Canadian Geological Survey.]

The gold-bearing rocks of Nova Scotia cover an area of some 5,000 square miles along the Atlantic coast. Their total thickness is about 27,000 feet and they are probably of the Lower Cambrian age. Since their deposition on a sea floor they have been folded into a series of anticlines and synclines, roughly parallel with the coast line, the folds having an average distance of 3 miles apart. This folding was accompanied by a fissuring of the strata along the planes of sedimentation at the summits of the anticlines and gave rise to a succession of superposed saddle-shaped auriferous veins.

Mining operations have so far been confined to the veins outcropping at the surface and have not reached a greater depth than 600 feet, and although often conducted in a very unskillful manner they have been remunerative. The recent study of this region by the Geological Survey has proved conclusively, however, that the auriferous saddle veins occur one below the other on the anticline domes like the "saddle reefs" of Bendigo, Australia, which are mined so extensively to depths reaching 4,000 feet. This succession of saddle veins presents a most important field of operation for deep and permanent mining.

THE ALSEK DISTRICT.

[By W. M. BROOK. From the Engineering and Mining Journal, New York, May 12, 1904.]

Last summer a new placer gold field was discovered by Dawson Charley and three other Indians. This is known as the Alsek district, and is situated in the Northwest Territory of Canada, near the Alaska border. Yakutat Bay, Alaska, is the nearest salt-water harbor, being about 80 miles from the central section of the camp. The first gold was found last June on Ruby Creek. Prospects were found running from 40 to 50 cents to the pan. This discovery is 165 miles west of Whitehorse on the White Pass and Yukon Railroad. The news became circulated early in July along the upper Yukon, and a stampede of 500 or 600 miners followed. As a result of this exploration numerous creeks, draining an area of over 30 miles square, were found to contain gold in paying quantities.

Smith and party, of Haines Mission, Alaska, discovered, in October, the richest prospects on streams they named Bullion and Sheep creeks. They are about 35 miles southwest of Ruby Creek. Small sluice boxes were used on Ruby and Bullion creeks a few days before the season closed. On the latter stream the pay streak, where exposed, averaged about 10 feet in thickness; the width has not yet been determined. Locations have been recorded on ten creeks, with their tributaries, entering into Kluane (Kloo-Annie) Lake and on eight creeks running into Kloo Lake.

Generally speaking, from the many prospects found the gold is coarse and rough. It is very dark in color, showing presence of impurities. The largest nugget found

was worth \$8. This is high-grade bullion, assaying from \$18 to \$18.50 per ounce. Copper nuggets have been found on a number of these creeks. More float quartz has been found in this new district than in any other placer camp in the north. There is an abundance of water and lots of grade on most of these streams. A sufficient quantity of spruce timber of a fair quality can be secured conveniently for lumber and fuel.

Owing to the difficulty in getting in provisions last fall, very little actual mining was done. Three town sites have been taken up, namely, Ruby City, Bullion City, and Sheep Camp. Ruby City will be the distributing center this year for the district. The winter trail from Whitehorse to this new settlement was opened early in the season and a large amount of freighting has been done. Twenty cents per pound is now the freight rate on the trail. Dogs are depreciating in value and horses are taking their places as the season advances. Road houses have been established at convenient distances along the route for the accommodation of the traveling public. This is a very profitable business in all new mining camps.

* * * * *

The Northwest Territory mining act allows a placer claim location 250 feet on the stream and 1,000 feet on either side from base line; 1,000 feet is allowed for discovery placer claim or 1,500 feet for two locators. A miner's license costs \$7.50 per annum. Instead of "representing" in open season, \$200 comprises annual assessment work. The royalty has been cut down to 2 per cent on gross output. Discoverers on each creek are exempt from royalty.

The Alsek district is situated in one of the favorite Indian hunting grounds. The wild game, the mountain trout and grayling, and many miles of hay meadows offer the incoming miners more special inducements than can be had in almost any other mining camp in the north. Adjacent to this camp considerable unexplored territory yet remains. The extent and richness of the district will be determined more definitely by the close of the mining season this year. The best summer route this season will be by the way of the Dalton trail from Haines Mission, Alaska, which is 20 miles south of Skagway. The distance is about 200 miles.

* * * * *

MEXICO.

Answering this Bureau's interrogatories, Mr. Fenton R. McCreery, United States chargé d'affaires ad interim at the City of Mexico, states that the Republic, in 1903, produced \$10,851,271.12 worth of gold. The Mexican valuation of gold being \$675.416 per kilogram, this would represent 16,066.05 fine kilograms, worth, at the United States valuation of \$664.60 per kilogram, \$10,677,498, equivalent to 516,524 fine ounces. Compared with the yield of 1902 there was a gain of \$524,404, or 25,368 fine ounces.

The silver output in 1903, at the Mexican mint valuation of \$40.915 per kilogram, was \$89,364,383.02, or 2,184,147.2 kilograms, worth, at \$17.43, the average commercial price per kilogram in 1903, in United States money, \$38,069,686, equivalent, at 54 cents per ounce, to 70,499,942 fine ounces. The silver product in 1901 having been 60,176,696 fine ounces, there was a gain in 1903 of 10,324,246 fine ounces, and of \$6,176,040 in value, due, in part, to the increase in commercial value.

Of Mexico's production of gold and silver the United States (according to the United States Bureau of Statistics), in 1903, imported no less than \$32,798,859 in ore and bullion, \$9,309,091 of which was gold and \$23,489,768, silver. Germany's imports of the precious metals from Mexico in 1903 were insignificant.

The *Économiste Européen*, of January 8, 1904, gives the following figures of exports of silver for the year ended June 30, 1903, deriving the data from official sources. Ores, bars, concentrates, and coin are

included in the amounts which, it should be observed, are for fiscal years. The values are in Mexican silver dollars:

1902-3	\$82,320,735
1901-2	72,467,899

Increase	9,852,836
----------------	-----------

Under date of July 29, 1904, Mexican gold exports for the same year are also given, the values being in gold piasters (\$0.983, United States):

Ore	\$276,741.77
Concentrates	8,928,067.51
Cyanides	81,027.71
Sulphides	67,517.19

Total	9,353,354.18
Coinage	713,146.00

Total	10,066,500.18
-------------	---------------

PRODUCTION OF GOLD AND SILVER IN MEXICO.

[From Monthly Consular Reports, December, 1903.]

The Boletín de Estadística Fiscal for the fiscal year 1901-2, just issued by the Mexican treasury department, gives the following statement of Mexico's gold and silver production during the twenty-five fiscal years from 1877-78 to 1901-2, inclusive:

Fiscal year.	Gold production.	Silver production.	Fiscal year.	Gold production.	Silver production.
1877-78.....	\$746,630	\$24,836,903	1890-91	\$920,702	\$41,874,411
1878-79.....	881,301	25,135,264	1891-92	1,074,637	47,096,156
1879-80.....	941,958	27,555,627	1892-93	1,269,907	55,245,434
1880-81.....	1,012,697	29,234,398	1893-94	1,244,621	58,210,150
1881-82.....	936,223	29,239,078	1894-95	4,744,542	58,204,085
1882-83.....	955,639	29,568,577	1895-96	6,085,038	61,003,672
1883-84.....	1,055,184	31,695,841	1896-97	6,861,126	63,689,112
1884-85.....	914,179	33,226,211	1897-98	7,584,182	70,149,606
1885-86.....	658,020	34,208,214	1898-99	9,346,541	72,498,723
1886-87.....	683,153	37,534,104	1899-1900	7,823,701	70,218,914
1887-88.....	664,365	39,367,983	1900-1901	9,327,542	74,326,406
1888-89.....	684,480	41,347,626	1901-2	9,932,676	72,530,983
1889-90.....	700,909	39,156,687			

The value of the gold is calculated at the rate of \$675.416 per kilogram and the silver at \$40.915 per kilogram.

The increase of the gold production was very slow until the year 1894-95, when it received an impulse which raised it from \$1,244,621 in 1893-94 to \$4,744,542, an increase of \$3,499,921 in the twelve months, and to \$9,932,676 in 1901-2, an increase of \$8,688,055 in eight years.

The silver production increased from \$24,836,903 in 1877-78 to \$72,530,983 in 1901-2, an effective increase of \$47,694,075 in the twenty-five years.

The inevitable inference from these facts is that the depreciation of silver in foreign markets has not prevented the increase in the silver production in Mexico, and has been an impulse to the gold production.

THE CENTRAL AMERICAN STATES.

COSTA RICA.

Replying to this Bureau's interrogatories, Mr. John S. Caldwell, United States consul at San Jose, Costa Rica, states that the mines of that country, in 1903, produced gold to the amount of \$228,237, which coincides with the amount reported as exported in the form of bars, and which would represent 11,040 fine ounces, which was 4,293 fine ounces in excess of the yield of the preceding year. Costa Rica produces a small amount of silver.

HONDURAS.

No direct returns have been received by this Bureau regarding the product of the gold and silver mines of Honduras, but Mr. Philip Brown, United States chargé d'affaires at Guatemala, transmits the appended statement, which was furnished by the minister of foreign affairs of Honduras, of the exports of gold and silver from that country in 1903:

GOLD.

United States	\$21, 075. 00	
England	74, 936. 00	
Colombia	64, 340. 00	
	<hr/>	\$160, 351. 00

SILVER.

United States	247, 535. 00	
Colombia	149, 458. 64	
	<hr/>	396, 993. 64

GOLD AND SILVER.

United States	5, 250. 00	
England	6, 750. 00	
France (estimated)	3, 375. 00	
	<hr/>	15, 375. 00

MINERAL ORES.

United States	487, 310. 98	
Germany	810. 00	
	<hr/>	488, 120. 98

Total gold and silver	1, 060, 840. 62
-----------------------------	-----------------

As the gold and silver are not separated in all the declarations, it is impossible to state exactly the value of each metal. This Bureau, however, estimating that in the case of exports containing both gold and silver each metal would represent one-half the total value, places the gold product of Honduras for 1903 at \$412,099, equivalent to 19,935 fine ounces, and the silver at \$648,742, or 1,201,374 fine ounces.

GUATEMALA.

This Bureau has received no particulars regarding the production of the precious metals in Guatemala in 1903, which in any event is so slight as to be a negligible quantity in the estimate of the world's output. The reports of the United States Bureau of Statistics and the Annual Statement of the Trade of the United Kingdom for 1903 do not reveal any imports of the precious metals from Guatemala into the United States or Great Britain, countries which usually receive the greater part of her product.

NICARAGUA.

Mr. Chester Donaldson, United States consul at Managua, states, in reply to this Bureau's interrogatories, that Nicaragua, in 1903, produced gold to the value of \$1,930,000, while its silver yield was too slight to be worthy of mention. The figures closely agree with the amount of declared exports. Reducing the value given, which is evidently in pesos, to United States money, we have, as the value of Nicaragua's gold production in 1903, \$777,790, which would represent 37,626 fine ounces.

According to the United States Bureau of Statistics, 26,135 ounces of this came to the United States, while the only silver received was a small amount of coin.

SALVADOR.

Mr. John Jenkins, United States consul-general at San Salvador, informs this Bureau, under date of March 25, 1904, that Salvador exported gold and silver in 1903 to the value of 1,965,885 colons, or \$914,137, and silver, in bars and concentrates, to the value of 70,932 colons, or \$32,983. It is impossible to separate exactly the gold and silver, but in the absence of explicit data, this Bureau estimates Salvador's gold production in 1903 at \$457,151, or 22,115 fine ounces, and the silver at \$490,151, or 907,687 fine ounces.

The total production of Central America for the year under examination is exhibited in the subjoined table:

State.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Value.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>	
Costa Rica	11,040	\$228,237	^a 7,002	\$3,781
Guatemala				
Honduras	19,935	412,099	1,201,374	648,742
Nicaragua	37,626	777,790		
Salvador	22,115	457,151	907,687	490,151
Total	90,716	1,875,277	2,116,063	1,142,674

^a Reported by United States Bureau of Statistics.

DEVELOPMENT OF THE MINING INDUSTRY IN HONDURAS.

[From Monthly Bulletin of the International Bureau of the American Republics, February, 1904.]

The following article, taken from Consular Reports, is interesting as showing the activity in mining in the Republic of Honduras, although the companies operating are hampered by being remote from transportation:

"The chief industry is mining. Several large properties are being successfully worked and give excellent results on the investment of capital. The lack of proper and cheap transportation facilities creates some difficulty in bringing up supplies and machinery to the mines and in the shipment of ores, concentrates, and bullion. The shipment of the last named is attended with considerable expense, as many workmen, mules, mule drivers, and guards are required to transport it to the coast. Miners find no climatic hindrance in the prosecution of their enterprise, as the cool air of the mountains and the uniform temperature are conducive to good health.

"Largest among these enterprises is the New York and Honduras Rosario Mining Company, established at San Juancito, in the Department of Tegucigalpa, and 21 miles from the capital. In round figures, the mines are 100 miles from the south or Pacific coast. The average output is 60 tons of dry ore a day. The value of the concentrates and bullion reaches many thousands of dollars each year. The mines are worked for silver and gold. A considerable part of the silver exists as sulphide; the gold is largely native and very finely divided. The nature of the rock is eruptive, and it is traversed by a large number of fissure veins, intersecting and joining at various angles, usually standing at a steep inclination. During the past year some improvements have been made with a view to reducing the heavy transportation expenses. The decline in silver has had much to do with the devising of means to reduce not only expenses of shipment, but the loss in the manipulation of the ores.

"The Arrecina Gold and Silver Mining Company (Limited) has its workings in a spur of the Lepaterique Mountains, some 30 miles from the Gulf of Fonseca. The depth of the working of this mine is 150 feet, and the annual production has ascended to 15,000 ounces of gold. The character of the ore is sulphide-oxide and oxide, respectively.

"The mines near Yuscaran, on the frontier of Nicaragua, have shown splendid

results in the past, but lately, through litigation, have remained undeveloped. The principal extraction was gold ore. The placer mines of Olancho have received much exploitation, and although the Indian women of the district have washed out large quantities of gold, the United States companies have been unsuccessful in obtaining material results."

MINING IN GUATEMALA.

[From the Mining Journal, London, August 6, 1904.]

Mr. Vice-Consul Michovsky, writing from Livingston, Guatemala, states:

"The placer mines of Las Quebradas are situated about 15 miles from the railway station Morales, in the foothills of the mountain range dividing Guatemala from Honduras. They were accidentally discovered about twenty-five years ago and during the first ten years yielded handsome profits to native and foreign miners. When all the small water courses were worked out the miners left, and the placer passed into the hands of the Friedman Mining Company, of New York, by concession from President Rufino Barrios. This company spent a large sum of money in the development of the property, but without any material success. The shareholders became discouraged and the work was abandoned. It was then that the present owners, Messrs. Potts and Knight, of Yzabal, obtained control of it, and in their hands, with proper management, the mine soon developed into a most remarkable success. For fifteen years it has continued to yield large profits to its owners.

"The richest part of the gold-bearing strata is a bluish-white gravel, sometimes clayish and hard to wash. Strictly speaking, there is no 'dead dirt' (tierra muerta), as even the grass soil contains gold dust. The average yield per cubic yard is about 20 cents United States currency in the upper strata, and one-eighth to one-half ounce (\$2.25 to \$9 United States currency) in the blue gravel. The bed rock is a soft conglomerate called 'talpatete.' It is not the true bed rock, but, owing to the difficulties of getting rid of the tailings and the adaptability of the talpatete to 'lift on' in the 'wash up' no one ever goes below it.

"The extent of the placer proper is about 2 square miles. The washing is done by the usual hydraulic process. The water is conducted to the two monitors in 10 and 12 inch pipes under pressure of 120 feet, sufficient for all purposes.

"No doubt gold exists in other localities of that same mountain range, but prospecting in a tropical primeval forest is something very different from prospecting in an open country like California or Australia. Covered with a dense vegetation and a thick layer of humus, the unfortunate prospector looks in vain for 'indications;' he soon gets discouraged and abandons the search."

* * * * *

GOLD FIELDS OF EASTERN NICARAGUA.

[Monthly Consular Reports, December, 1903. From United States Consul Gottschalk, San Juan del Norte, Nicaragua.]

INTRODUCTORY.

Very little information was obtainable, seek it as one might, in the United States only a few years ago relative to the gold fields of Nicaragua. The official map of the Republic, "patented in 1897 by H. G. Chalkley for the Government of Nicaragua, the owner," showed then, as it does to-day, only vaguely and in small type one or two "regiones mineras" (mining regions)—the Pispis, Wawa, and Concepcion. Another map, often seen in Bluefields and originally printed at the instance of a lumbering enterprise there, bore only the names Prata Hills, Cuicuina, and Cuicuina mines, each surrounded by the alluring little yellow circlet that meant "gold." For the rest, one must needs have depended upon travelers' tales, each more or less highly colored by the dreams of the prospector.

GOLD EXPORTS.

A glance at the exportations of gold from the port of Bluefields alone during the past three years will show, however, that not only has the eastern coast of Nicaragua a valid claim to be known as a gold-bearing region, but that the gradual and steady increase in the exportations of the product since 1900 indicates a very systematic development of the gold fields in question, a development far in excess of that of any other gold-producing section of the country.

EXPORTS OF GOLD FROM BLUEFIELDS FROM JANUARY 1, 1900, TO JUNE 30, 1903.

Year.	Quantity.	Value.
	<i>Ounces.</i>	
1900	13,334½	\$216,507.25
1901	16,741	259,077.00
1902	22,718½	339,056.80
1903 (first 6 months).....	13,100	192,670.00

EARLY GOLD FINDINGS.

In the year 1885 one John Schultz was at work placer mining in Siuna, at the headwaters of the Prinzapolka River. His work consisted entirely of washing gold from placers which he at various times located in his neighborhood. It is said that the stretches of gold-bearing sands in question were originally shown him by Mosquito or Sumoo Indians, although neither the Indian traditions nor any of the records of ancient Spanish occupation seem to refer to the presence of gold in this particular section of the country. Certain it is, however, that for some years Schultz, with no other help than that of a few Indian laborers, worked his gold deposits profitably. A firm at San Juan del Norte (Hoadley & Ingalls) shipped his gold for him and supplied him with his few necessities. The concern having failed some years ago, there is no record available as to what quantities of gold were thus exported; still, these were large enough to arouse some comment in the press of the Gulf and Pacific coast States at home. A momentary interest was thus excited, but the costliness of the enterprise to a stranger, the long canoe trips up the rivers (which are absolutely the only highways of this entire section), and the necessity of learning the Mosquito tongue or kindred dialects (Sumoo, Woolwa, Tawaweera, Rama, etc.,) did much to deter immigration.

In 1889 Schultz himself visited the United States and shortly after a number of prospectors, chiefly from California, began to seek the new field.

Schultz later retired from the country on a competence which he had amassed in the Siuna region.

About 1892 Paul Renner, a prospector, while working in the same Siuna district, located a placer deposit in a dry creek and staked out a claim called "El Dorado." He is said to have located three "pockets" between the years 1892 and 1894, and is popularly reported to have extracted therefrom some \$30,000 worth of gold. About the same time, some miles up Wawa River, one Biebel found an outcropping on a claim, which he called "El Coco," and on mere surface work is said to have netted sums aggregating from \$20,000 to \$40,000. Later he worked in the same region in company with others, among them O'Neill, a Colorado miner, who bought him out in the course of time and finally himself retired, some say with as much as \$50,000 earned in the Wawa "diggings."

In 1892 still another prospector, John Mueller, assisted by a prominent Bluefields merchant, located a number of profitable claims on the river Coco (or "Wanks," as it was formerly more often called), which placers are still worked. The parties most interested confess that there was much bad management at the start which ate up the profits of what almost everyone admits to have been the most promising placers located in the neighborhood of the Coco River.

MINERAL REGIONS.

The news of the discoveries, productive in four or five instances of what to many men would have been a competence to retire upon, encouraged prospectors to tempt the country, which had at first seemed to offer so many difficulties in the way of transportation, contact with the natives, etc., the effort being always to follow the placers upstream until the mother ledge was reached. There are at the present writing on this coast seven distinct "mineral regions" or groups of mines in the course of development, many of which have already reached the point where, after all the heavy expense of installation has been gone through, the owners see before them the prospect of certain remuneration. The regions in question are locally known as follows: Pispis, Tunki, Siuna, Coco (or Wanks), Cuicuinita, Rio Grande, and La Grupera (or "El Mico" region).

* * * * *

TUNKI REGION.

Itinerary.—From Bluefields to Prinzapolka Bar by sea; ascend the Prinzapolka River; enter and ascend Bambano past its first important tributary, the Okumwass, to the point where the river forks into Tunki and Tunkibin.

The chief mines in this region are the Bonanza, the Neptune, and the Atlas.

The Bonanza mine, which is situated on a creek of the Tunki River, has been running for the past three years, with an output which has averaged some \$75,000 per year. Since early June the mine has been running with six 3½-foot Huntington mills. J. Lapierre and others are the owners. Mr. Lapierre has been prospecting in this country some years. It was he who first discovered the Concordia mine, elsewhere alluded to, which he sold out for \$30,000. With this sum he bought the then undeveloped Bonanza, imported a mill, and has now established a piping plant, which brings water to him across a valley and forces it up the hill on which he is located. He estimates the value of his plant alone at \$30,000; the mine itself cost him \$10,000 three years ago.

The Neptune is universally regarded as a promising mine. It was formerly the property of the pioneer Julius Schultz, and was worked by him for a while. It is now owned by F. A. Pellas, of Granada, and has been working up to ten months ago with a Ball pulverizer, yielding excellent results. It is believed that this mine will later be more systematically developed.

The Atlas was found in 1894 and profitably worked for some time. A 5-stamp mill was put in. Development has been temporarily suspended, owing, I am told, to disagreement among the owners.

OKUMWASS REGION.

Not far from here on the Okumwass River is the Minnesota mine. This mine is worked with a 3½-foot Huntington mill, and has an output of 30 to 50 ounces of gold per month. The owners are H. A. Mayppother, of Jamaica, and Horatio Patterson. For lack of capital the mine is being worked with a plant insufficient to exploit its full resources.

In the same region is Gradis mine, a property of excellent reputation.

PISPIS REGION.

Itinerary.—From Bluefields to Prinzapolka Bar by sea; ascend Prinzapolka River to Bambano; ascend Bambano.

The principal mines here are the Siempre Viva, the Constancia, the Concordia, the San Antonio, the Santo Domingo, and the Lone Star.

Of this region, which is generally regarded as the richest of the entire mining section, the Lone Star mine is the one which within the past year has attracted most widespread attention. Discovered in 1898 by the united effort of two prospectors, Copey and Maltby, it has finally become the property of Messrs. Smith, McInnes, and Bluett. In the ten months preceding July, 1903, they had crushed 43,940 tons of ore, equivalent to getting out of the mine \$65,910. The work is done at the Lone Star with a 3½-foot sectional Huntington mill, and I am told that they have in construction a 20-stamp Allis & Chalmers mill, soon to be put into operation. On April 1, 1903, the mine declared a dividend of \$40,000.

The Siempre Viva mine is another of importance. Its output in 1900, 1901, and 1902 was \$22,229.22, \$31,077.87, and \$31,309.31, respectively, and during the first five months of 1903 \$34,169.31. The mine is worked by a 20-stamp Fraser & Chalmers mill. The Siempre Viva Mining Company is organized at Bluefields with S. D. Spellman as president, J. A. Balanger as vice-president, M. J. Clancy as secretary, J. S. Lampton as treasurer, and M. J. Clancy, Joseph W. Beer, and W. D. Ingram as directors.

The Constancia, originally owned by Don Clemente Carlos and a Grand Caiman's man named Crimins, who located it in 1888, was traced up from placers that had long furnished remunerative finds. The ore averaged recently, I was told, about \$8 per ton free gold. The mine has recently changed hands, and it is expected that the new owners (New York parties) will, with their greater capital, provide more adequate facilities for working. At present most of the work of the Constancia mine has been done on its ledge La Cecilia, and after quite primitive methods. Another ledge, forming part of the same property—the Vesuvius—will, it is expected from experimental workings, prove far superior.

The Concordia mine, discovered in 1895 by P. Rener and R. Lehman, is working two 5-stamp mills and average an output of \$5,000 per month. Other good properties near by are San Antonio and Santo Domingo.

WAWA REGION.

Itinerary.—From Bluefields to Wawa Bar by sea; then ascend Wawa River.

Wawa River for 20 miles up from the seacoast flows through lowlands "fit only for rice growing," once said a New Orleans rice expert, although no rice is grown there. About 40 miles up the pine lands begin on either bank, and there is an abandoned sawmill there. As a mineral district the region has had a remarkable history, although of late years it appears to have ceased to be a favorite field for prospectors. In 1891-92 gold was found about 70 miles above the sawmill, where the foothills begin, by unknown prospectors. In 1892-93 a man named Biebel found an outcropping on a claim called "Coco," and on mere surface work was able to take out between \$30,000 and \$40,000 of gold. He retired, selling out to persons from South Dakota, who, after working profitably for some time, gave up the claim.

Biebel, meanwhile, in partnership with a Doctor Chester and a Colorado miner named O'Neill, worked a ledge named "Tilba" (Mosquito Indian for "tapir") with some profit. Having bought out his partners, O'Neill continued the work alone, and one day unexpectedly ran across a hilo, as it is called in Spanish (streak), running parallel with the ledge, some 40 feet from the surface and pitching toward the ledge, which it reached at the 70-foot level. His operations were kept secret, but is is estimated by persons who are in a position to know that he finally left the country with a sum not less than \$50,000. Since then, however, nothing that I can ascertain has been done in the Wawa region, though whoever will follow the placer deposits may eventually run across another ledge of like character.

SIUNA REGION.

Itinerary.—Bluefields to Prinzapolka Bar by sea; ascend the river, taking the left-hand fork where it divides into Bambano (on the right) and Prinzapolka or Toongla (on the left); proceed to the town of Wany; thence on mule back five hours to Siuna.

La Luz y Los Angeles is the chief mining enterprise of this region. In January, 1903, it declared a dividend of \$21,428.57, of which \$6,428 was set aside to form a reserve fund for further expenses. The equipment of the mine consists of two 3½-foot Huntington mills. Its last year's output is given me by the company as 2,915.86 ounces, valued at \$49,304.89. Many improvements, among others the use of water power instead of steam, as heretofore, are under way in the installation, and the mine is certainly one of those in the country which should have an assured future.

Other mines of good repute in this region are the Buenaventura, the property of Don José Pizarro, and the Santa Rita, owned by Don Ignacio Osorio. Detailed information about these and figures which were promised had not reached me at the time of concluding this report.

LA GRUPERA (OR EL MICO) REGION.

Itinerary.—From Bluefields by steamboat, up the Escondido River, past the town of Rama. The first tributary on the right hand is the Siqui and the second the Mico, which gives the region its name.

This mining region is particularly interesting, and is perhaps the most widely known of those of the seaboard Departments. The use of the so-called "cyanide process" is being studied by certain mine owners there, notably Mr. Henry Brown, of Bluefields, and it is expected that before many months such mines as this gentleman and his partners control will be equipped with the necessary installation for the use of cyanide of potassium in lieu of the older style "amalgamating process" of separation. A prospector who reached this region in 1892 found it impossible to interest capital in a quartz mine there. J. W. Cutting located the Rebecca ledge at that time, which averaged a free assay of \$3 to \$20 per ton.

In 1896 a Canadian prospector discovered what was destined to become one of the principal properties of the coast, the El Mico ledge.

The Sajina, Dos Amigos, Cecilia, San Francisco, and Siquia are all promising claims, whose output has at various times formed the bulk of the gold exported during the month from Bluefields.

It is at the Cecilia that in all probability Nicaragua will for the first time see the installation of the much-talked-of cyanide process, superseding the older methods.

COCO (OR WANKS), RIO GRANDE, AND CUCUINITA REGIONS.

Data promised me as to these have unfortunately not been forthcoming. The work done on the upper reaches of the Coco is principally placer; the same applies to Rio Grande, which has been much less thoroughly prospected.

La Rosalia and the Hermandad are promising quartz mines in Cuicuinita district, both the property of Chinese merchants at Bluefields.

The district takes its name from the Cuicuinita River, one of the upper branches of the Prinzapolka.

* * * * *

MINING IN NICARAGUA.

[By H. E. WEST. From the Mining and Scientific Press, San Francisco, Cal., June 18, 1904.]

There seems little doubt that in this country, as well as in all other countries comprising Central America, considerable deposits of gold occur. Many of these have been worked from ancient times by the Indians, most probably from knowledge acquired from their Spanish conquerors. The Leonesa mine has also been worked off and on from the time of the Jesuits, one hundred and fifty years ago, to the present day. The style of mining adopted was by shallow adits and inclined shafts, up which walked the *mozos* (laborers), packing the ore on their backs, as can be seen to-day all through Mexico and Spanish America. The "gallery" system was adopted in stopping, as is their usual custom—doubtless a safe but a very wasteful method of working ground. The ore was carried by mules to the creek and there treated by *arrastras*.

Speaking of Nicaragua in general, while there would appear to be numerous small mines scattered around in several provinces, there is not one with a respectable monthly bullion return. The Santa Francisca mine, near Leon, up to some eight years ago was worked on a comprehensive scale, and yielded good returns—just how much I am unprepared to state—but I understand the ore body is phenomenally wide and of considerable gold contents, most of the ore averaging over the ounce, and in places the ore body running over 100 feet in width. This deposit is apparently of solfataric origin, and the water is so hot that miners can work but short shifts, reminding one of the Comstock before the advent of the Sutro tunnel. This mine is now treating its accumulation of slimes by filter presses, with more or less success, and I understand they are now sinking, or about to sink, their main shaft to 1,000 feet or so, and so prove the deposit in depth before opening out on a larger scale than heretofore. This mine is owned by the Nicaragua Development Company, owned and controlled by London capitalists.

In the province of Segovia and others, this same company owns other mines, which are being brought into the line of producers in a small way, and which also bid fair to ultimately yield large returns, as in all cases the ore bodies are of very considerable extent, necessitating operations being conducted on an extensive scale.

In the province of Segovia, which borders on Honduras, an American company holds a large and valuable concession from the Government to work mineral lands, and I understand the prospects are excellent, but there would not appear to be very much actually in progress that can be classified as mining.

In several other parts of the country, on the east side, there are small mines producing their quota, but of these I have no definite information.

Along the Coco River, which empties into the Atlantic, there is some placer mining being conducted by English and Americans, but I have yet to hear of any very brilliant results accomplished. It is true, I believe, that operations to date are being conducted on a very modest scale, and with limited means as to equipment.

In the Leonesa mine, near Matagalpa, there is a very strong vein, extending over a mile through the company's property, of considerable width, and with gold contents distinctly payable. The vein is composite in structure, comprising a soft manganese portion, in which invariably the highest gold contents occur. This ore is, however, "gritty" to the touch, and contains more silica than would appear to be in its composition. Usually on the north wall there is a "friction breccia," consisting of angular pieces of wall rock, cemented together with an agglomeration of quartz crystals. This ore is also payable. Extending on either wall there often occur small quartz "stringers," or "*hilos perdidos*," as they call them here, that often run for a considerable distance from the vein proper, causing in places wide zones of enrichment that with a comprehensive scale of operation would be capable of profitable extraction. The ore is thoroughly oxidized, soft, and with quartz cellular in a structure, never massive.

There is almost a mile of development work done in the several tunnels, raises, etc., which opens up a very considerable quantity of ore, and it is not often that one finds such a reserve to draw from at their disposal when a mill is for the first time ready to work.

With regard to the treatment, we are now engaged in putting in one-half of a 60-head stamp mill. The ore will be raised from the mine through a short shaft, in reality an elevator, and dumped into the coarse breakers, from whence it falls into the mill bin located not more than 300 feet from the shaft. All the mine buildings will be located within a very small area contiguous to the mine. These comprise a general machine and smith shop, a large general store, assay offices, etc.

The ore first passes through the breakers; thence into the bin; from thence through the battery in the usual manner. It is contemplated to crush with weak cyanide solution and dispense with plates. The pulp then goes through a tube mill—an adaptation from cement-manufacturing practice. This machine is such as is at present largely used in western Australia for the pulverizing or sliming of the telluride ores of that region. The use of this machine on our ore here is for very fine grinding. This is accomplished by passing the pulp from the battery through an iron cylinder lined with "silex" lining. This cylinder is partially filled with flint pebbles, which by the revolutions of the cylinder cause the attrition of the ore and the flowing off of same in a fine state of division with the escaping water. The usual spitzluten and spitzkasten are then utilized for the separation of the coarser product for regrinding in the mill, and the latter for the thickening of the pulp for supplying the agitation vats. After agitation with weak cyanide, the pulp is run into montejus in the usual manner and fed to three presses, each 50-plate, 40 inches square, for 3-inch cake.

The pumping through of wash water is effected by other montejus worked by compressed air. Precipitation of the liquor is effected by zinc boxes, and the gold slime cleaned up by the usual sulphuric-acid process, the residues being collected in a small clean-up filter press.

The cyanide liquors are again made up to strength and pumped to the upper tanks, preparatory to again running same through the batteries, the liquors being again made up to requisite strength in the agitation vats.

Such is the process that has yielded good results by laboratory experiment. The process has been worked out and the mill designed by Philip Argall, of Denver, Colo. There is nothing altogether novel in the plant; all that can be said of it is that it accentuates somewhat the modern practice of sliming all ore particles for the more efficient extraction of their auriferous contents.

GOLD MINING IN SALVADOR.

[From the Engineering and Mining Journal, New York, June 30, 1904.]

According to a recent bulletin issued by the International Bureau of the American Republics there are four gold mines in operation in the eastern part of Salvador. They are situated in the Department of La Union, and their output at present is of considerable importance. One of the mines, the San Sebastian, belongs to an Anglo-American company. A cyanide plant was established at the mine two years ago and is now in operation. The results are said to be satisfactory both as regards the technical working of the plant and the profits derived therefrom. Two small stamp mills are in operation, giving an output of about 100 tons daily. The ore varies in value from \$20 up to \$1,000 per ton. At the present time plans are under way for increasing the capacity of the mill to 500 tons daily. The Salamanca mine belongs to an American company. A new stamp mill was erected on the property about a year ago, but the method of ore treatment is not thoroughly satisfactory. The Large Hill mine belongs to a Salvadorean company. About 20 tons of ore are treated daily by the cyanide process. The average value of the ore is \$30 per ton in gold. The Encuentros mines, owned by a foreign company, are equipped with a cyanide plant. The ores contain from 70 to 80 ounces silver and about 2 ounces gold per ton. The same company is working the Corazal mine, from which the ore averages about \$30 gold per ton. The daily output is about 10 tons, and the ore is treated by the cyanide process.

SOUTH AMERICA.

COLOMBIA.

Mr. Alban G. Snyder, United States consul-general at Bogota, in reply to this Bureau's interrogatories, states, under date of April 25, 1904, that the Government publishes no statistics regarding the production of the precious metals in Colombia, but that the treasury estimates the yield of gold in 1903 at \$29,800, and the silver at \$150,000.

According to data furnished by the United States Bureau of Statistics, however, the United States imported from Colombia gold ore and base bullion to the value of \$1,763, and refined bullion to the value of \$385,093, a total of \$386,856; while the imports of silver bullion were valued at \$1,930.

The Annual Statement of the Trade of the United Kingdom for 1903 shows that Great Britain imported from Colombia in 1903 gold bullion amounting to 120,204 standard ounces, or 110,187 fine ounces, of the value of \$2,277,767; 1,003,472 ounces of silver bullion, worth \$541,875, and, in addition, ore to the value of £13,510, or \$65,746; a total of \$607,621, equivalent to 1,125,224 fine ounces.

Germany imported 90 kilograms of gold from Colombia in 1903, but no silver. Assuming the gold as reported to have been fine, its value was \$59,814. These exports are held to constitute Colombia's production of the precious metals in 1903. Accordingly, the gold is placed at \$2,724,437, which would represent 131,795 fine ounces; and the silver at \$609,551, or 1,128,799 fine ounces.

The gold yield of 1903, therefore, exceeded that of 1902 by 3,482 fine ounces, while the silver yield decreased 647,869 ounces, it in 1902 having been estimated by this Bureau at 1,776,668 fine ounces.

THE GUIANAS.

BRITISH GUIANA.

Mr. George H. Moulton, United States consul at Demerara, replying to this Bureau's interrogatories, states that British Guiana, in 1903, produced 92,542 ounces, or 2,878 kilograms of gold. The amount exported was 91,968 ounces, and was valued at \$1,601,380, which would represent 77,467 fine ounces; the product, therefore, was 0.842+ fine. Assuming that this was the fineness of the entire output of 1903, the yield for that year was 77,948 fine ounces, of the value of \$1,611,328. The output in 1902 having been 87,492 fine ounces, there was a decrease in 1903 of 9,572 fine ounces, or 10.8+ per cent.

The chief gold fields are Louisiade, Sudest Island, Yira, Godda, Murua or Woodlark Island, Uiline Bay, Cloudy Bay, and Musa River. Most of the gold produced is exported to England, but the customs returns do not account for the entire outturn.

DUTCH GUIANA.

Dutch Guiana, according to Mr. Moulton, produced in 1903 gold to the extent of 682.5 kilograms, valued at \$375,880 in United States money, equivalent to 18,183 fine ounces, or 565.5+ kilograms; the product, therefore, was 0.8286 fine.

The Engineering and Mining Journal, February 18, 1904, contains the annexed statement of the gold yield of Dutch Guiana for 1903:

	Kilograms.
Surinam	243. 183
Saramacca	149. 462
Marowine	36. 775
Lawa	230. 472
Total	659. 892

The fineness is not stated. Compared with the output of 1902, there was a gain in 1903 of 2,556 fine ounces.

No silver is produced in the colony.

FRENCH GUIANA.

French Guiana, according to the United States consul at Demerara, Mr. George H. Moulton, produced 4,033 kilograms of gold in 1903. The commercial value is not stated, although the fineness is said to have been the same as that of the other gold exported from that district.

The Mining Journal, Railway and Commercial Gazette, London, March 26, 1904, states that in 1903 the gold entered for shipment at Cayenne and St. Laurent amounted to 4,033 kilograms, thus agreeing with Mr. Moulton's statement. Of this amount 3,597 kilograms were entered at Cayenne, as compared with 4,645 kilograms in 1902, which appears to have been the entire product of French Guiana in that year. In 1902 the fine contents were 3,642 kilograms. The product, therefore, was 0.784 fine.

Assuming that the fineness remained the same in 1903, the product for that year is placed at 3,162 fine kilograms, of the value of \$2,101,465, which would represent 101,658 fine ounces, or 15,419 ounces less than the yield of 1902, which was 117,077 fine ounces.

The total product of the Guianas in 1903 was as follows:

Country.	Quantity.	Value.
	<i>Ounces.</i>	
British Guiana.....	77,948	\$1,611,328
Dutch Guiana.....	18,183	375,880
French Guiana.....	101,658	2,101,465
Total	197,789	4,088,673

BRITISH GUIANA AND ITS MINING DEVELOPMENT.

[By E. G. BRADDON. From the Mining Journal, London, May 21, 1904.]

HISTORY OF GOLD MINING IN THE COLONY.

The colony of British Guiana has been in prior oocupation at different times, by us, by the French, and by the Dutch. We aquired it finally from the latter by conquest just one hundred years ago. The French have left few traces of their presence, but the persistency and conservatism of the Dutch character is evidenced in the survival of a great deal of their constitutional and law framework, and in the language, uses, and working methods of the people of to-day.

The history of gold working in the Guianas begins with the legendary and fabulous accounts of discoveries of the Spaniards, of Raleigh, and of the earlier Dutch. Their "Dorado," was variously placed—that of Raleigh and the Dutch is said to have been on Lake Amucu, on the head of the southwestern Essequibo watershed, while the "Laguna del Oro" of Aeunha and Father Fritz lay on the southern slopes of the same watershed, among the sources of the Rio Negro. Against the legendary statements and ill-founded arguments of old chronielers, as to vast gold deposits in these parts, there is only known to me, through the credible statements of two or three men who have traversed some portion of these districts and washed occasional prospects, that the drifts of the Ireng and Takutu, tributary to the Branco, and those of the Rupunini, and of some higher tributaries of the Essequibo also, are auriferous, probably in payable measure, but El Dorado remains unfound.

The first mining efforts reliably recorded were permitted by enactments of the Council of Ten, of Holland, in 1721. A miner named Hildebrand was sent out, and some work was done on a quartz formation near the first cataracts on the Cuyuni River. This, as well as one or two other early attempts, was practically abortive.

It may be said that for one hundred and sixty-five years nothing further was done until, in 1887, regulations for gold mining were again framed, this time by the British

Government of Guiana. Mining in the colony dates entirely from this time or fifteen or sixteen years since, and has been confined substantially to alluvial gold working by primitive methods.

There have been four or five attempts, during the few years of Guiana mining, to carry out more highly organized work, both in lode and alluvial. They have failed more or less completely, on grounds as follows:

Quartz mining in the Barima district, on local capital, has failed, mainly because the properties were not opened up properly or sufficiently to maintain an output, and there have been no reserves of capital to carry on with. The principal one of these suspended or stranded undertakings has been, quite recently, supported from London. A £25,000 working capital has been provided, and the property may now be opened up in a workmanlike manner—the Barima Gold Mining Company.

Quartz mining in the Demerara River district has failed for very much the same reason as that in the Barima. In most of these efforts there is evident also a lack of mining knowledge and experience in proving and opening up grounds, so that the abortive work has been resultless, either in proof or disproof of values.

In highly organized alluvial work there have been three principal attempts, one by gold dredging on the Barima, another by hydraulic mining on the Barima, and the third by steam pump sluicing and steam dredging at Omai, on the Essequibo.

The Barima district hydraulic mining enterprise was supported by Georgetown capital. The value of the deposits to be operated was proved and is unquestioned, the ground being in operation even now, by primitive methods. The mining scheme adopted by the Georgetown company proved to be ineffective. The capital was exhausted in this first construction work; no further capital was forthcoming to amend the scheme of operation, and the enterprise remains suspended.

The Barima dredging operations failed because the sand and gravel drifts deposits at Arakaka, where the dredging was begun, were not in any quantity, and, besides being very shallow, are associated with much clay, so that there was little except clay matter and bed clay to dig at, a class of stuff ill-suited for handling on a dredge. The Barima Dredging Company sold their dredger to the Omai Company, where it is also unsuitably placed.

Of the Omai Company's mining operations it is necessary to speak somewhat fully; first, because these are the only ones in the history of the colony which have been supported by large capital expenditure; second, because, despite their ill success, it is persistently represented that the fate of Guiana mining is dependent on them. This company has, during the last eight years, spent over £200,000 in connection with various mining undertakings in the colony. It is a Berlin syndicate, supported principally by the Deutsche Bank. Large sums were spent in quasi-scientific, quasi-experimental investigations, at various points. At Omai the proper line of inquiry being subordinated or overlooked, attention was directed to unimportant quartz segregations in the auriferous dike rocks. A shaft with some hundreds of feet of crosscutting and driving in the hard unaltered rock was carried down to a 260-foot depth, through the easily worked kaolinized zone, and several diamond drill borings were made in the neighborhood to depths of 800 and 1,000 feet. All these were, however, vertical holes from the surface, no advantage being taken of the shaft workings to put in angle or other holes from the depth gained. The shaft workings themselves, with head gear, etc., have been lost through the use of inferior timber, when green heart of the finest description was growing in abundance at the very collar of the shaft.

The sections given in the sink and by the drill cores show, as Professor Harrison reports, that the diabase and diabase residues of the surface are underlain by a much altered granite—aplite, granite, etc.—traversed by intrusion of the basic rocks, and showing pyrites.

The granitic bed rock is auriferous in some degree, samples having given up to 15 pennyweights of gold per ton of rock. Professor Harrison attributes (Geological Report, 1900) the presence of this gold to infiltration from the decomposing surface diabase. It seems, however, to me, much more probable that the gold depositions follow the weakened or ruptured zones of certain pressure planes in the basic dikes, in their contacts with the older acidic rocks, or in common through both.

In this regard it seems to me that the exclusive attention which has been given, both at the Omai and at other attempted lode mining developments in the colony, have ignored the main objective, for the gold depositions in strained pressure planes of such rocks may be unassociated with marked quartz segregations; further, the gold may be deposited as metal or telluride in such finely disseminated particles that the rock may remain indistinguishable from ordinary country to the eye, though of high value. In this class of enriched dike-like deposits the quartz occurrences are highly irregular, and are entirely misleading if followed as vein matter. In the

Boulder mines of western Australia it is frequently the only marked distinctive feature between very high grade gold-bearing stone and the adjoining barren green-stone country rock; that the former shows more or less marked banded structure against the large and irregular jointing of the latter. The foliation in this case being, of course, conformable to the opposite thrusts which meet in the pressure planes. Where the weakening would be greatest would be in the intersections of pressure planes of similar underlie but different strike. At such intersections, as also on folds, the weakening of the rocks might amount to shattering, and enlarged and probably enriched shoots, with increased proportions of deposited quartz, would be the result. I think there is a very promising field for investigation on these lines in Guiana, notably perhaps at Omai, at "Peter's" Majuba Hill property, on the Puruni, and in some of the great diabase dikes and masses of the Madhia and Konawaruk, to which the origin of the rich alluvial gold of these river basins can be traced.

The Omai Company's attempts at organized hydraulic gold mining have been fully as ill-planned as those for lode mining. Almost every sort of mistake that was possible has been made. Heavy orders for machinery and pipes were placed in Berlin, and it was not till delivery of this in the colony had commenced that it was decided to cable for the writer to go from New Zealand and advise a full working scheme. The writer had to report that the working scheme then proposed was fantastic, and modified in some degree, so far as was permitted and possible. I have said, and have no hesitation in repeating, that the German installation at Omai is absolutely the wrong one, and that it is in principle directly opposed to correct practice, with the result that working costs per yard are four or five times what they should be, and only ground of exceptional richness can be operated. If, instead of the ill-advised adoption of steam-driven machinery, an intelligent use had been made of the great natural forces of pressure water and fall immediately available, there might have been secured, at a quarter of the cost, an installation to work on lines of true mechanical and hydraulicking practice, with a normal, if not a minimum rate of working cost, which would have made the larger deposits—of moderate grade ground—available for profitable operation, and so give the Omai proposition a magnitude and length of life which are wanting to it under the present circumstances.

In the foregoing I have sought to show that the failure or nonsuccess of the few larger enterprises inaugurated in British Guiana is due less to the demerits of the proposition than to error in their handling.

It is of importance that the Omai practice should not be repeated in Guiana, as is liable to be done in the absence of any proper example of hydraulicking.

The gold returns for the colony so far are substantially all from alluvial work by small parties of diggers and date back only to 1884; they are recorded by the mining department and institute of mines and forests as follows:

Year.	Quantity.	Year.	Quantity.
	<i>Ounces.</i>		<i>Ounces.</i>
1884	250	1895-96	121,285
1885	939	1896-97	127,479
1886	6,518	1897-98	121,490
1887	10,986	1898-99	113,114
1888-89	20,216	1899-1900	112,789
1889-90	32,332	1900-1901	114,102
1890-91	66,864	1901-2	101,332
1891-92	110,555	1902-3	104,525
1892-93	134,124		
1893-94	138,527	Total	1,570,426
1894-95	132,999		

Worth, at £3 15s., £5,889,000.

The inception of placer mining in Guiana was due to the enterprise of men, chiefly negroes, from French Guiana, who had acquired there some little knowledge of alluvial gold work, and came to the British colony to prospect. The industry has been carried on since almost entirely by a section of the negro population of Demerara. These men have more or less completely abandoned the agricultural work, which, up to the gold era, was practically the only means of livelihood open.

A good deal of local capital was employed in sending out prospecting expeditions from Georgetown, and fully 80 per cent of the located claims in British Guiana are owned by Georgetown residents.

Up to a year or two ago many of the small syndicates or individual owners, among whom a greater proportion of the proved gold fields were divided up, still carried on

alluvial mining operations by gangs of paid laborers superintended by paid agents. Now, however, the general practice on the part of the claim owners is to encourage the negro gold diggers to work their ground at their own risk as tributors, the claim owner only running a shop, at which the pork knockers, or tributors, have to sell their gold and purchase their supplies. Liquor invariably is a principal line in the trade of these shops, and the prices of goods range from 75 to 400 per cent over Georgetown rates.

The white and creole element, forming the leading section of the unofficial community in Georgetown, is generally unfit and unwilling to undertake the heavy work of developing the back country. Among these men the "bush" is regarded with horror, and, in so far as they may belong to or take their cue from the planting interests, there is still some affectation of looking down on the mining business.

By natural selection the whole mining work of the colony has been seized by and relegated to the black man. Under the circumstances it goes without saying that there has been little improvement in the working methods, which remain very much what they were when imported from Cayenne. A certain degree of dexterity has been acquired in the use of the few implements of labor employed, and a considerable amount of flourish and ritual hung around the poor and inefficient practice, but no real advance in working principles is possible without the support of some capital and experienced direction, neither of which have yet been available to the black man's efforts.

* * * * *

BRITISH GUIANA'S MINING INDUSTRY.

[From The Mining Journal, London, January 16, 1904.]

The governor, Sir J. A. Swettenham, in his report for the year 1902-3 to the colonial office, dated Georgetown, November 3, writes:

"The output of gold for this year shows an increase of 3,193 ounces on that for 1901-2, the production for this year being 104,525½ ounces. The increase is due in some measure to the opening up of new ground in the Barima River, and also the production from the Omai Hydraulic Works, which started regular work in September. The output from this property has been fairly satisfactory, and will probably improve in the near future. During the year the record nugget in the history of the gold industry of the colony was found on a claim on the Barima River. It weighed 334 ounces, and was composed almost entirely of pure gold. The dredge on the Barima River ceased work in September, the results being unsatisfactory, as the gravel to be treated proved of no great depth and not worth the cost of dredging.

"The gold output for the last five years has been as follows:

Year.	Quantity.	Year.	Quantity.
	<i>Ounces.</i>		<i>Ounces.</i>
1898-99	113,114	1901-2.....	101,332
1899-1900	112,789	1902-3.....	104,525
1900-1901	114,102		

MINING IN VENEZUELAN GUIANA.

[From The Engineering and Mining Journal, New York, August 4, 1904.]

The mining district of Guiana is known as Las Misiones, because it was first colonized by Spanish missionaries, who, at the end of the eighteenth century, had over thirty very prosperous establishments. These missions were destroyed during the war of independence and the monks were massacred or expelled. After the dispersion of the monks the country was colonized by people from the north of the Orinoco, who mixed with the Indians, so that pure Indians have now totally disappeared from the region.

Local traditions tell of fabulously rich mines that had been exploited by the monks and were walled up before their departure from the country. It was only in 1845 that the first nuggets were found in the bed of the Yuruari River, and in 1850 the first work in that valley was begun. In the valley of the Mocupia large quantities of placer gold were discovered and miners commenced to flock to the district, especially from Peru and Colombia. For fifteen years the quantity of gold extracted went

on increasing, and in 1865 the famous quartz vein of Callao was discovered. After a very difficult and modest start the Callao mine reached a production of gold so great that it attracted, for a long time, the attention of the whole world. Not until 1871 did the production of El Callao commence to be important, the quartz then yielding over 6 ounces of gold per ton. A real gold fever invaded the district, all the surrounding lands were secured, and mining claims were taken up by speculators who cared little about the existence of ore on their property. Mining companies were formed by use of the reputation of the Callao mine, as Callao Bis, New Callao, West Callao, etc.; mills were purchased and erected before any veins were discovered, the inevitable result being the bankruptcy of the companies and severe losses to the English and French capitalists who rushed to speculate.

VENEZUELA.

Venezuela publishes no official statistics of her production of the precious metals and her statements of exports are imperfect, consequently it is difficult to estimate the yield.

According to the United States Bureau of Statistics, this country imported from Venezuela, in 1903, gold to the value of \$18,266, equivalent to 884 fine ounces.

The Annual Statement of the Trade of the United Kingdom for 1903 shows that Great Britain received 2,582 standard, or 2,367 fine, ounces of gold from Venezuela in that year, while Germany's imports, according to the United States minister to that country, amounted to 26 kilograms, or 836 ounces, which is assumed to have been fine. The total imports into the three countries named, therefore, were 4,087 fine ounces, of the value of \$84,486.

Mines and Quarries for 1902 places the gold exports from the port of Ciudad Bolivar at £63,904, or \$310,989 in 1900, and £89,151, or \$433,853 in 1901.

Following is a statement (quoted from the Statesman's Yearbook of 1904) of Venezuela's gold production from 1884 to 1899, inclusive:

Year.	Quantity.	Year.	Quantity.
	<i>Ounces.</i>		<i>Ounces.</i>
1884	233, 935	1892	46, 560
1885	172, 037	1893	47, 950
1886	217, 135	1894	52, 925
1887	95, 352	1895	47, 588
1888	71, 594	1896	60, 674
1889	88, 834	1897	43, 500
1890	85, 531	1898	39, 500
1891	49, 050	1899	42, 315

These evidently are crude ounces, and it is apparent that the gold product of Venezuela has rapidly diminished since 1884. The average annual production, according to the above figures, is 87,155 ounces, crude.

According to the Annual Statement of the Trade of the United Kingdom for 1903, the gold bullion imports from Venezuela for the last five years were as follows:

Year.	Imports.	Year.	Imports.
	<i>Standard ounces.</i>		<i>Standard ounces.</i>
1899	10, 284	1902	782
1900	1, 847	1903	2, 582
1901	3, 745		

From the two last tables it appears that Venezuela's gold output has continued to diminish in recent years, but it is not likely that it has fallen as low as 4,087 fine ounces, or \$84,486, which is the total amount revealed by the customs returns. However, in the absence of anything more definite this figure is held by this Bureau to represent Venezuela's entire output of gold, while the silver yield is so small as to be a negligible quantity.

ECUADOR.

Gold and silver abound in Ecuador, but the annual output is small. The former is obtained chiefly from alluvial deposits, but there are quartz veins at Zaruma which yield from 1 to 4 ounces to the ton.

Rich silver ore is found in Cañan, but the mines are not worked at present.

In answer to this Bureau's interrogatories, Mr. A. J. Sampson, United States minister to Ecuador, states that gold to the value of \$70,436 was reported as produced by that country in 1902, and that there was no production of silver.

The custom-house returns are, however, regarded as a more exact indication of the yield, and as neither gold nor silver was coined in Ecuador in 1903, and as the industrial consumption was practically nihil, the amount exported is held to represent the actual production.

The minister states that gold bullion and dust to the value of 322,096 sucres, or \$156,861, was exported to the United States, a figure somewhat less than that reported by the United States Bureau of Statistics as received from Ecuador, which was \$174,558, and which is adopted as probably the more correct figure. According to the minister's report, the gold bullion shipments to France were valued at 125,336 sucres, or \$61,039; those to Germany at 43,660 sucres, or \$21,262, and those to England at 35,947 sucres, or \$17,506.

The figure given for Germany is practically confirmed by the report of the United States minister to that country. The total amount of gold exported, therefore, was valued at \$274,365, equivalent to 13,272 fine ounces, which is accordingly held to represent Ecuador's gold yield for 1903. Her silver output is so slight as to be a negligible quantity in the estimate of the world's production.

GOLD PRODUCT OF ECUADOR.

Year.	Quantity.	Value.	Year.	Quantity.	Value.
	<i>Ounces.</i>			<i>Ounces.</i>	
1899	2,315	\$47,855	1902.....	9,675	\$200,000
1900	5,208	107,665	1903.....	13,272	274,365
1901	5,319	109,954			

BRAZIL.

Replying to this Bureau's interrogatories, Mr. Thomas C. Dawson, secretary of the United States legation at Rio de Janeiro, states that Brazil's output of gold is assumed to be equal to her export of gold bars, which amounted in 1903 to 4,322.043 kilograms, valued at \$2,274,228.14, which would represent 3,421.92 kilograms, or 110,016 fine ounces. The bullion as reported, therefore, was about 0.791+

fine. The product of 1903, compared with that of 1902, basing the statement upon data derived from the exports, shows a gain of \$175,125, equivalent to 263.5+ fine kilograms, or 8.3+ per cent.

Brazil produces no silver.

THE PALMA GOLD DEPOSIT OF MINAS, BRAZIL.

[Written by L. FERRAZ, E. M., for the Brazilian Mining Review. From the Mining and Scientific Press, San Francisco, March 19, 1904.]

Since 1839 the aboriginal Indians have been in the habit of paying merchants for their purchases in gold dust. In 1842 Father F. S. Linhares, a fugitive from the Minas insurgents, founded the parish of St. Francis de Assis do Capivara, and since then the Indians have occupied themselves in gold washing in the Capivara Brook, from which large amounts of gold dust have been extracted. The methods employed have been the most rudimentary, shallow holes or shafts being dug and the pay dirt panned. It is stated that as much as three-eighths to one-half ounce has often been separated from a single panful of gravel. The gold is of high assay, carrying but little silver. Such was the abundance of the output that it served as money for all local transactions. Later on, however, coffee replaced gold as the staple product, and mining fell into desuetude.

A short time ago, Doctor Alvim, having purchased a small property on which some excavations were needed, was surprised during the course of the work to notice visible gold in the gravel. He commenced panning, recovering 20 grams of gold at slight depth in flakes and small nuggets. This was the motive for the present survey.

TOPOGRAPHY.

The Matto Dentro plantation, which lies about 500 feet above sea level, lies somewhat to the east of the city of Palma (once called Capivara), and about a mile from the station of that name on the Leopoldina Railway. The lands lie on the headwaters of the Capivara Brook, which rises in the serra of the same title, a spur of the San Antonio and San Joao Range, the divide between the Rio Muriahe to the south and the Rio Pomba to the north.

The Capivara is the most important tributary on the left bank of the Rio Eugenio da Serra or Batatal, and it receives the waters of a number of small rills on its left bank. The region recognized as auriferous is limited to the headwaters of these streams, comprising the plantations of Matto Dentro, Praia, and Lavras, all on the left bank. The right bank and bed of the Batatal does not contain even traces of gold.

GEOLOGY AND MINERALOGY.

The plantation of Matto Dentro is characterized by the crystalline character of the rocks, gneiss predominating, with granites and syenite, and may be referred to the Laurentian age. The writer encountered one Huronian quartzite, no schist at all, no mica schist, or limestones. The gneisses are varied in structure, but generally granitiform. The lower beds are of common foliated gneiss, amphibolitic, and syenitic gneiss. The granites, some typical, some with amphibolite, pyroxene, and garnet, form a series tending toward a true syenite. Veins of granulitic black tourmalines, in prisms of various sizes, separate or agglomerated, and veins of pegmatite, common or of graphic structure, cut into the primitive masses. The mica of the granites and gneisses is generally biotite, some of it lithia-bearing. Some of the gneisses contain both biotite and muscovite. Both orthoclase and plagioclase occur. The quartz is white, black, yellow, violet, red, and hyacinth.

Two distinct types of rock occur, the miasitic, rich in black mica and ilmenite, and the zirconian, containing a certain proportion of zircon and monazite.

Among the residuary minerals found in the panconcentrates are the following: Sphene or titanite, rutile, garnets, black tourmalines, graphite, zircon, oligist (hematite), magnetite, disthenite, staurolite, and monazite.

The gneisses have a northeast-southwest strike, some dipping to the southeast, others to the northwest, the angle between the two masses being about 65°.

The micaceous-pyritic quartzitic outcrops have a northwest-southeast direction, dipping southwest. On account of the decomposed state of the superficial blocks, the dip could not be measured.

THE GOLD DEPOSIT.

Gold is found in a state of great purity, as flakes, grains, and small nuggets, in alluvial gravels which cover the river beds and the area subject to floods, as well as the country surrounding the headwaters of the streams previously detailed: The panconcentrates consist chiefly of quartz grains, titaniferous minerals, such as limenite, titanite and rutile; almandine and pyrope garnets and melanite; black tourmaline and monazite. Oligist (hematite) and magnetite occur in diminished proportion. Wherever the gravel be panned, more or less gold is found. The average value of this gravel per cubic meter is not less than 5 grains, equal to 9 shillings per cubic yard. It would only be possible to estimate the mass of auriferous gravels present by means of methodical soundings, which time considerations did not admit of.

Proceeding through the various surveys carried out in the auriferous basin, the writer found:

1. Visible gold in small grains, in a schistose granitoid pyritic gneiss, which crops out about 500 meters from the river at a spot called Fazenda Velha.

2. Gold, not visible, in two outcrops of quartzite of a grayish color, containing specular iron, mica, and mispickel. These quartzites are traversed by narrow stringers of white quartz and occupy the superior part of the headwaters of the Porteira and Pasto brooks, seemingly forming part of the main auriferous basin. All the gravels of these streams are auriferous.

3. Gold, not visible, in small pyritic nuclei, in a granitoid syenitic gneiss.

MONAZITIC SANDS.

Monazite constantly appears in greater or less amount in the panconcentrates. It is possible that rich and important beds exist, seeing that one pan residue contained 20 per cent of this mineral. The value of this mineral has considerably increased of late years, owing to its high thorium content. From the geological character of the district, it is probable that this is one of the monazite centers, and may possibly be of future industrial importance.

VARIOUS MINERALS.

The writer found in one panconcentrate a small crystal of beryl of clear green color, and fragments of white quartz with galena.

LOCAL DETAILS.

Extensive forests exist in the neighborhood, with an ample supply of timber for fuel or constructional uses. Water power sufficient for working on a large scale is not available close at hand, but at a small cost power could be tapped at no great distance.

In the writer's opinion, the auriferous gravels could be industrially developed by modern dredging and hydraulic methods, by which small mineral values give satisfactory results.

It is advisable to ascertain, by means of sounding or excavation, what mass of pyritic mineral exists, and what its assay value may be.

PERU, BOLIVIA, AND CHILE.

Owing to the inadequacy of the data regarding the production of the precious metals in Peru, Bolivia, and Chile, it is necessary to have recourse to statements of exports; but, as the product of one country may be exported from the seaport of another, it is impossible to determine in every case exactly where the metal was mined. The effort is made to ascribe the exports to the country of origin, at the same time admitting that it is not always possible to do so.

PERU.

Mr. Irving B. Dudley, United States minister to Peru, answering this Bureau's interrogatories, states that £111,639.5 Peruvian gold pounds were coined at the Lima mint in 1903, all from native gold.

The gross receipts of gold at the mint were valued at £114,314, or, in United States money, \$556,309. Gold ore to the value of \$12,745 was received by the United States from Peru in 1903, while the imports into Germany amounted to 37 fine kilograms, valued at \$24,590. There were no imports of gold bullion into the United Kingdom in 1903. Peru's gold product for that year, therefore, appears to have been worth \$592,644, equivalent to 28,669 fine ounces.

According to the Annual Statement of the Trade of the United Kingdom, Great Britain imported 75,995 standard ounces, or 70,295 fine ounces, of the value of \$37,959, of silver bullion from Peru in 1903 and silver ore to the value of £172,066, or \$837,359.

The United States imports, according to the United States Bureau of Statistics, during the same period amounted to \$67,886, equivalent to 125,715 fine ounces. Germany, during the year under consideration, received no silver from Peru.

Peru coined no silver in 1903, and, as the industrial consumption of silver in that country is insignificant, her exports, which amounted to \$943,204, are assumed to represent her entire product. The valuation given would indicate that it was 1,746,674 fine ounces.

BOLIVIA.

According to the *Estadística Comercial de la Republica de Chile*, correspondiente al año de 1902, Bolivia, in that year, exported, through the port of Antofagasta, silver concentrates, ore, bars, and sulphides to the value of 12,885,735 pesos, or \$4,703,283, equivalent, at 53 cents per ounce, to 8,874,119 fine ounces. In addition there were exported silver and copper concentrates and ore, silver and lead ore, silver-lead, and silver and lead sulphides, to the value of 274,540 pesos; assuming that 50 per cent of this was represented by the silver, it would be, in United States money, \$50,603, equivalent to 95,477 fine ounces. The total exports of silver in 1902 were, therefore, 8,969,596 fine ounces, of the value of \$4,753,886. It is impossible to verify this figure by reference to the statistics of imports of the United States, Great Britain, and Germany, although it is learned that private refineries in the first-named country obtained 3,953,641 fine ounces of silver from Bolivian ores.

In 1902 Bolivia exported gold bars to the value of 2,700 pesos, or \$985, equivalent to 48 fine ounces.

In the absence of any data for 1903, the figures for 1902, as above given, 8,969,596 fine ounces of silver, and 48 fine ounces of gold, are repeated for 1903, the value of the silver, owing to the rise in price, being increased to \$4,843,582.

CHILE.

No official figures regarding the production of the precious metals in Chile in 1903 have reached this Bureau. Final figures for the preceding year are, however, now at hand.

Chile publishes very complete statistics of her exports of gold and silver, carefully distinguishing between those of domestic and foreign origin, as the Bolivian product is exported through the Chilean port of Antofagasta. The publication containing these figures (*Estadística Comercial de la Republica de Chile*) is, however, generally a year late.

According to the issue for 1902 the Chilean exports of the precious metals in that year were as follows, the values being given in pesos. It should be noted that these exports are described as domestic (nacionales), and are distinguished from those of Bolivian origin.

	Pesos.
Gold:	
Bullion	1, 337, 020
Precipitates	236, 019
Ore	55, 453
Total	1, 628, 492
Gold and silver:	
Precipitates	25, 657
Ore	244, 245
Total	269, 902
Gold, silver, and base metals:	
Gold, silver, and copper	131, 141
Gold, silver, and zinc	180
Total	131, 321
Gold and base metals:	
Gold and copper	39, 198
Silver:	
Bullion	1, 654, 502
Concentrates	541, 474
Ore	69, 367
Total	2, 265, 343
Silver and base metals:	
Silver and copper	82, 845
Silver and lead	57, 794
Silver, lead, and copper	15, 872
Total	156, 511

The total value of the metals exported was 4,491,767 pesos. In the case of the valuation of complex products an effort is made to determine the value of each of the precious metals in them, and, while it is admitted that an exact determination of their value is impossible, the total value of these products is so slight—only 455,970 pesos—that any error that may arise would be insignificant. In the case of combination of gold and silver, one-half the value is assigned to each metal; in the case of gold, silver, and base metals, one-third of the value is ascribed to each of the precious metals, and in the case of a precious metal in combination with base metals, one-half the value is assumed to represent the former. Following this method, the value of Chile's gold production in 1902 is estimated at 1,827,149 pesos, or \$666,908, equivalent to 32,262 fine ounces, and the silver at 2,522,656 pesos, or \$920,769, which would represent, at 53 cents per ounce, 1,737,300 fine ounces as the product for 1902.

In the absence of all data for 1903 the figures for 1902 are repeated, the commercial value of the silver, owing to the rise in average price to 54 cents, being placed at \$938,142, to which must be added \$338,456, the United States value of the silver coinage executed at the mint of Santiago, in 1903, which consisted, according to data furnished by

Mr. Henry L. Wilson, United States minister to Chile, of 371,649 pesos and 1,111,288 half pesos; a total of 927,278 pesos.

The value of Chile's silver output for 1903 is accordingly placed by this Bureau at \$1,376,598 in United States money, which would represent 2,597,355 fine ounces.

ARGENTINA.

Exact information regarding the production of the precious metals in the Republic is not obtainable, and such figures as this Bureau has been able to offer have been based chiefly on statements of exports of ore and metal.

Under date of April 11, 1904, Mr. John Barrett, United States minister to Argentina, states that there are no statistics available of the output of the gold mines of the country and that probably the amount would not exceed \$100,000, which is considerably in excess of what has usually been ascribed to Argentina. The statement of the silver exports appended indicates, however, that there has been a marked increase in the productivity of the mines.

Silver exports: ^a

Copper and silver	\$53,565
Copper, silver, and gold	22,450
Silver	6,057
Silver and gold.....	4,880
Total.....	86,952

According to the Annual Statement of the Trade of the United Kingdom for 1903, the exports of the precious metals from Argentina to Great Britain were as follows:

Year.	Gold bullion.	Silver bullion.	Ore.
1899.....	\$8,111	No returns.	\$2,638
1900.....	19,708	\$6,610	3,333
1901.....	4,889	No returns.	10,691
1902.....	11,180	\$9,327	11,426
1903.....	No returns.	No returns.	23,413

There was no coinage of gold or silver in Argentina in 1903. The Memoria del Departamento de Hacienda correspondiente al año 1902 (Buenos Ayres, 1903) contains the following statement of the exports of the precious metals in 1902:

	Kilos.
Gold ore.....	675
Silver ore.....	4,130
Silver bars.....	236
Auriferous earth	4,150
Gold and silver ingots	\$8,900

As the values, except in the case of the last item, are not given, it is impossible to ascertain what were the fine metallic contents.

It is impossible to put forth an estimate of Argentina's production of the precious metals with any confidence in its correctness, but from the exceedingly meager data in its possession this Bureau estimates it at \$80,000—gold \$30,000 and silver \$50,000—which would represent 1,451 and 92,592 fine ounces, respectively.

^a Commercial values.

URUGUAY.

Mr. William R. Finch, United States envoy extraordinary and minister plenipotentiary to Uruguay, deriving the information from Mr. Alberto Castello, of the division of mines of the national department of engineers, states that Uruguay, in 1903, produced 117.28 kilograms of gold, worth, at \$440 per kilogram, \$51,492.32; disregarding the slight error and assuming the value given to be correct it would represent 77.4 kilograms, or 2,491 fine ounces. No silver is produced.

The customs returns of the German Empire and also those of the United States Bureau of Statistics for 1903 show no imports of the precious metals into those countries from Uruguay in the year under discussion. The trade returns of the United Kingdom show that Great Britain received 977 standard ounces of gold bullion and no silver, consequently the figures given by the United States minister is held to represent Uruguay's production.

EUROPE.

RUSSIA.

Mr. Robert S. McCormick, United States minister to Russia, in a report made to this Bureau, states that Russia in 1903 produced 2,262 poods, 25 pounds, 60 zolotniks, and 17 doli, or 37,063.17595 kilograms of fine gold, valued at 47,870,788.7775 rubles, equivalent in United States money to \$24,653,456.22; the stated number of kilograms at the United States valuation of \$664.60 would be worth \$24,632,186.74, which is taken as the value of the gold yield of the Russian mines during the year under consideration. This valuation would represent 1,191,582 fine ounces, which was 101,529 fine ounces in excess of the output of 1902, a gain of 9.3 per cent.

The production of gold in Russia from 1816 to 1880, by periods of five years and subsequently by years, is shown in the following table:

Period.	Production.	Period.	Production.
	<i>Kilos fine.</i>		<i>Kilos fine.</i>
1816-1820	1,269	1886	29,734
1821-1825	9,466	1887	30,985
1826-1830	22,167	1888	31,257
1831-1835	30,522	1889	33,118
1836-1840	34,469	1890	34,998
1841-1845	80,846	1891	34,745
1846-1850	121,543	1892	38,223
1851-1855	113,371	1893	39,884
1856-1860	122,158	1894	38,172
1861-1865	107,026	1895	36,543
1866-1870	134,131	1896	33,076
1871-1875	156,937	1897	34,977
1876-1880	180,766	1898	34,166
1881	32,677	1899	33,351
1882	32,138	1900	30,312
1883	31,887	1901	34,383
1884	31,719	1902	33,905
1885	29,348	1903	37,063

The average annual production of fine gold in Russia from 1816 to 1902, inclusive, was 21,154 kilograms, the low average being due to the small production of the earlier years of the period. The product for 1902 was 60 per cent greater than the average for this period. In recent years the production has remained remarkably constant.

Russia in 1903 produced fine silver to the amount of, approximately, 4,704 kilograms of the commercial value, at \$17.43 per kilogram, of \$81,990, equivalent to 151,835 fine ounces.

Production of silver in Russia from 1822 to 1900, inclusive, by periods of five years and subsequently by years, is as follows:

Period.	Production.	Period.	Production.
	<i>Kilos fine.^a</i>		<i>Kilos fine.^a</i>
1822-1825	66,930	1871-1875.....	51,731
1826-1830	85,211	1876-1880.....	49,801
1831-1835	93,780	1881-1885.....	40,262
1836-1840	89,239	1886-1890.....	64,996
1841-1845	88,172	1891-1895.....	45,097
1846-1850	83,896	1896-1900.....	33,204
1851-1855	77,204	1901.....	4,884
1856-1860	78,224	1902.....	4,998
1861-1865	77,542	1903.....	4,702
1866-1870	73,306		

^a Approximate.

FINLAND.

[From Bidrag till Finlands Officiella Statistik, XVIII; Industri Statistik, 19, 1902.]

Finland in 1902 produced 3,256 grams of gold, worth 10,420 Finnish marks (\$2,164 in United States money), all of which was obtained from washings, which gave temporary employment to 55 men.

In 1902 silver obtained as a by-product in copper smelting was produced to the amount of 298 kilograms, worth \$5,066. This was slightly in excess of the production of 1901.

PRODUCTION OF GOLD AND SILVER FOR THE LAST TEN YEARS.

Year.	Gold.		Silver.	
	Weight.	Value.	Weight.	Value.
	<i>Grams.</i>	<i>Finnish marks.</i>	<i>Kilograms.</i>	<i>Finnish marks.</i>
1891	8,768	28,057	1,038.32	100,000
1892	4,807	15,382	920	90,000
1893	4,120	13,184	888.83	88,000
1894	6,471	20,607	877.54	87,000
1895	9,926	31,765	450.81	45,000
1896	7,115	22,768	375.33	37,000
1897	4,593	14,697	381.19	35,000
1898	4,619	14,780	455.58	48,860
1899	2,620	8,384	244.25	26,000
1900	2,174	6,956	250.5	27,555
1901	1,974	6,316	271	27,100
1902	3,256	10,420	298	26,248
1903	3,256	10,420	298	26,914

As no figures have been obtained for 1903, those for 1902 are repeated; owing, however, to the rise in silver the commercial value of the product for the last year would be 26,914 Finnish marks, or \$5,194.

FREE GOLD IN BASIC IGNEOUS ROCKS IN SOUTHEASTERN RUSSIA.

[By W. H. WEED. From the Engineering and Mining Journal, New York, March 31, 1904.]

The recent discovery of gold-bearing basaltic rocks (monchiquite) from eastern Russia adds another link in the chain of evidence establishing a genetic connection between basic igneous rocks and free gold. The rock occurs in dikes less than a yard thick, cutting through gently tilted Carboniferous shales and sandstones. The rock was first noticed in sinking a coal shaft, and a specimen was forwarded to the Government laboratory to be assayed. This yielded 236 grams gold and 6,764 grams silver per metric ton. As the rock was of undoubted igneous origin, a fact confirmed by exam-

ination in the field, a detailed study of the locality was made, the results of which now appear as a monograph by J. Morozewicz (*Mémoires de: Ueber einige Gangesteine des Bezirks von Taganrog. Géologique, Nouvelle Série, Liv. 8, 1903*). The rocks form a group of little dikes on the slopes near the Krynka River, a tributary of the Mius, which empties into the Azov Sea, west of the town of Taganrog. These dikes are all similar in nature and from careful petrographic study the rocks are determined as monchiquite and camptonite. Several of them contain traces of trifling amounts of the precious metals, only the one first discovered carrying large amounts. The latter dike consists of a fine-grained black rock containing remarkable crystals and inclusions of pyroxene 10 cm. long by 6 cm. broad, much fractured, and crumbling under the hammer. In the fresher rock disclosed by excavating augite and biotite inclusions are common and olivine is readily recognized scattered through the dark gray ground mass. Both microscopic study of thin sections and chemical analysis showed the rock to be particularly fresh and impregnation by later solutions coming from outside appears out of the question. The rock consists of augite, biotite, hornblende, and olivine in a glassy base. The olivine is in phenocrysts, mostly colorless and fresh, but in part altered to serpentine. Short, thick prisms of augite occur, and this mineral also appears in the ground mass. Hornblende and biotite are the chief constituents of the ground mass, and also form phenocrysts in the gold-bearing rock. Both amphibole and augite are in part altered to chlorite and serpentine. Minute scales of hematite also occur.

The occurrence of platinum and free gold in the peridotites and the serpentines resulting from them in the Ural district of Russia has long been known, but outside of this and the few occurrences already noted gold is not known in the basic igneous rocks. In view of this the detailed investigation of the dike rocks of the Taganrog region, made by Morozewicz, is of more than ordinary interest and assumes especial importance, from a theoretical point of view. In order to understand the nature of this occurrence as fully as possible, careful chemical determinations of the monchiquites were made by this author, with the following results: First, the freshest samples of three dikes were tested for their gold and silver. The samples from dike No. 1 embraced, first, the material from which such high values in gold and silver were obtained, and, second, a sample from the same dike, with visible olivine crystals. The latter sample gave 1,253 grams per metric ton of silver, and traces of gold. In the monchiquite and camptonite rocks rich in biotite, merely traces, though very distinct ones, of silver were found. From a sample of 400 grams of rock, grains of native silver, visible to the naked eye, were obtained, but these grains were so small that they could not be weighed accurately. For a control test a sample of the original gold-bearing rock, carrying 236 grams of gold and 6,764 grams of silver per metric ton, was again assayed. The result of this test showed that 349 grams of gold and 7,804 grams of silver per metric ton of silver were found. These experiments clearly prove that the monchiquite dike first discovered is the only one which contains relatively important quantities of gold and silver, but that the precious metal contents of this rock are irregularly distributed through it, so the silver content, which in one place is 7,804 grams, in another place falls to 2,601 grams. Merely traces of silver were found in the other dikes. The monchiquite of the Krynka River (the gold-bearing rock) is characterized by a relatively large amount of fluorine, sulphur, and barium. The fluorine is in part present in apatite, of which mineral the rock contains 3 per cent.

Another part of the dike contains fluorspar, which from a rough calculation is estimated at 2 to 2.5 per cent. The sulphur appears as pyrite in grains too fine to distinguish, even with the microscope. It is of interest to note that the amount of sulphur in the gold-bearing rock is twice as large as that in the others. It is significant that the rock containing the greatest amount of gold and silver holds twice as much sulphur as the other rocks.

Origin of the gold and silver.—It is well known that one of the modern theories of ore genesis, especially the theory advocated by Vogt, endeavors to explain the occurrence of the heavy metals and oxides at the earth's surface through certain physico-chemical processes taking place in the interior of the earth. This process, which has been studied but little as yet, is generally designated as magmatic differentiation. Everybody is acquainted with the empiric fact that the acid type of magma is distinguished by its contents of such elements as W, Ur, Mo, Ni, Si, Zn, and Thor, while the basic type of the magma is characterized by such elements as Va, Ti, Fe, Pt, Ph, S, etc. The above distribution of the elements is explained by a differentiation of the primitive magma into a more acid and more basic portion, the derived magmas attracting during their separation those substances which are closest to them in chemical affinity. According to this, the very separation of the primitive magma into fractional parts, showing a difference in acids, is attained with the enrichment of each portion, the silicious magma with one class of elements, and the basic with the

other. The further differentiation, which may lead to the formation of ore deposits, depends on emination processes, commonly called pneumatolysis, which proceed hand in hand with the eruption of the silicious rocks. Processes of this kind are attributed by Vogt to "magnatic exhalation," and are supposed to take place through the intervention of volcanic substances, such as oxygen, hydrogen, carbon, fluorine, chlorine, and sulphur. These mineralizing substances may be contained in the magma and on separation may carry with them the metals which have no close affinity with silicon.

Although this view has been but imperfectly elaborated in detail, still, in my opinion, it may apply to the present case. The magma from which the monchiquite of Taganrog was developed contains, as we have seen, considerable quantities of fluorine and sulphur, which had the power of extracting the precious metals from the great mass of the magma and accumulating them in considerably quantity in the highest parts of the dikes. This is all the more probable because the dikes of this locality seem to occur in the form of a filling of blind fissures, which did not extend to the surface of the carboniferous series of rocks, and since their contents accordingly became congealed under a certain amount of pressure. The chemical composition of the rocks with which we are concerned thus offers a perfectly satisfactory explanation for the occurrence of precious metals in them, and in this respect the monchiquites of the Krynka River are a rare instance of very basic glassy rocks containing primary magmatic silver and gold.

NORWAY.

GOLD.

The gold product of Norway is exceedingly small, and it has steadily and, with the exception of the year 1896, rapidly diminished since 1889. Under date of April 12, 1904, United States Minister Thomas writes that "the yield for 1903 is relatively insignificant, but it may be stated that about one-third of a kilogram was produced during the year in Finnmarken."

Following is a statement of the production since 1889:

Year.	Weight.	Value.	Year.	Weight.	Value.
	<i>Kilos.</i>	<i>Crowns.</i>		<i>Kilos.</i>	<i>Crowns.</i>
1889.....		33,000	1897.....	1.21	3,000
1890.....		43,300	1898.....	2.42	6,000
1891.....		24,000	1899.....	4.03	10,000
1892.....		36,500	1900.....	3.63	9,000
1893.....		22,000	1901.....	4	10,000
1894.....		3,500	1902.....	4	10,000
1895.....		8,000	1903.....	4	10,000
1896.....	14.26	35,000			

The figures for 1897, 1898, 1899, 1900, and 1901 are from the Statistik Aarbog for Kongeriget Norge for 1903, the weights being computed from the value of the crown, being reckoned at 26.8 cents. No figures being obtainable for 1902 and 1903, the average of the last four years for which official returns have been received is taken, namely, 8,750 crowns, which is equivalent to 113 ounces of fine gold, or nearly 4 kilograms.

SILVER.

Regarding silver the minister writes:

At the Kongsberg Silver Works there was produced from April 1, 1902, to March 31, 1903, about 6,132 kilograms of fine silver, which was sold for 387,449.96 crowns. At other works, as far as is known, there has not been any regular production of any importance.

The Kongsberg mines have long been famous for their native silver, which is sometimes met with in masses of considerable size. The picked stuff sent to the smelting works contains 70 per cent of the precious metal.

Norway's production of fine silver since 1889 is exhibited in the annexed table:

Year.	Production.	Year.	Production.
	<i>Kilos fine.</i>		<i>Kilos fine.</i>
1889	5,350	1897	5,372
1890	5,080	1898	4,802
1891	4,680	1899	4,598
1892	4,810	1900	4,578
1893	4,770	1901	5,912
1894	4,760	1902	6,435
1895	5,000	1903	6,132
1896	4,664		

The estimates for the last two calendar years are based on the monthly averages, as the reports are for fiscal years, which do not coincide with the calendar years.

The figures for 1900 and 1901 are from the Statistik Aarbog for Kongeriget Norge, 1903.

The United States coining value for the yield of 1903 is \$254,850 and the commercial value \$106,881. At 54 cents, the average price per ounce during that year, this is equivalent to 197,928 fine ounces.

SWEDEN.

Replying to this Bureau's interrogatories, the minister of the United States at Stockholm, Mr. W. W. Thomas, jr., states that Sweden produced in 1903, 50.637 kilograms, or 1,628 ounces of gold, and 1.057 kilograms of silver. Assuming these to have been fine kilograms, the total respective values would be \$33,654 and \$18,423 (commercial value), the silver being computed at \$17.43 per kilogram.

The appended table contains a statement of the gold and silver production of Sweden since 1861:

Period.	Production.		Period.	Production.	
	Gold.	Silver.		Gold.	Silver.
	<i>Kilos.</i>	<i>Kilos.</i>		<i>Kilos.</i>	<i>Kilos.</i>
1861-1865	^a 14.895	^a 1,128.9	1896	114.529	2,082.3
1866-1870	^a 8.232	^a 1,185.3	1897	113.318	2,218.2
1871-1875	^a 5.133	^a 779.9	1898	125.937	2,032.9
1876-1880	^a 5.776	^a 1,116.9	1899	106.245	2,290.3
1881-1885	^a 24.796	^a 1,713.0	1900	83.483	1,927.4
1886-1890	^a 77.577	^a 4,254.2	1901	62.723	1,557.3
1891-1895	^a 93.895	^a 3,478.1	1902	94.309	1,443.0
1894	93.603	2,869.5	1903	50.637	1,056.8
1895	85.291	1,188.0			

^a Annual average.

GREAT BRITAIN.

This Bureau has received no information regarding the production of gold and silver in Great Britain in 1903, and the replies to its interrogatories for 1902 were received too late to be incorporated in the report for that year, which made it necessary to repeat the estimates for the previous twelvemonth, which, however, it has since developed, were too high in the case of both gold and silver.

Mr. John Ridgely Carter, of the American embassy in London, under date of November 11, 1903, furnished this Bureau with a statement, obtained through the courtesy of the British foreign office, of the production during 1902, according to which it appears that the gold amounted to 116 fine kilograms, of the value of £15,874, or \$77,251, which would represent 3,737 fine ounces; and the silver, 4,560 kilograms, of the value of £15,932, or \$77,533, which, at 53 cents per ounce (the average price during that year), would represent 146,289 fine ounces.

The figures for 1902 are repeated for 1903. The commercial value of the silver would, however, owing to the rise in price from 53 to 54 cents, be \$78,996.

BRITISH GOLD OUTPUT IN 1903.

[From The Mining Journal, London, May 21, 1904.]

State or colony.	Weight.	Value.
	<i>Ounces.</i>	
Transvaal.....	<i>a</i> 2,963,759	£12,589,247
Rhodesia.....	231,872	767,119
Gold Coast Colony.....	70,763	254,747
Return of gold won by companies and declared.....	2,310,116	8,316,418
Alluvial and dollied specimens declared.....	<i>b</i> 19,316	68,537
Total.....	2,329,432	8,384,955
Export and mint.....	<i>a</i> 2,064,801	8,770,720
Queensland.....	<i>a</i> 668,546	2,829,813
Victoria.....	822,424	<i>c</i> 3,289,696
New South Wales.....	295,778	1,080,029
New Zealand.....	533,314	2,037,831
Tasmania.....	<i>a, d</i> 28,093	<i>d</i> 119,331
South Australia.....	8,650	28,650
British Columbia.....	<i>e</i> 290,000	<i>f</i> 1,200,000
British Guiana.....	92,542	323,797
India.....	600,060	2,280,228
British Borneo.....	41,510	174,372

a Fine gold.

b Much alluvial gold won is not included, as there is no obligation on the part of the alluvial miner to disclose how much he has taken for his holding.

c Valued at £4 per ounce.

d Six months only.

e Approximate, and lode only.

f Approximate, lode and placer

GERMANY.

According to a report received from Mr. H. Percival Dodge, United States chargé d'affaires at Berlin, the refineries in the German Empire in 1903 produced 2,572.39 kilograms of gold, valued at 7,174,940 marks. Of this amount 106.12 kilograms were obtained from domestic ores, 344.10 kilograms from imported ores, and 2,122.17 kilograms from domestic and foreign sweeps. As the imported ores are credited to the country of origin, Germany's gold product for 1903 is placed at 106.12 fine kilograms, or 3,412 ounces, of the value of \$70,527.

The total silver product of the refineries was 396,252.88 kilograms, valued at 28,897,027 marks. Disregarding the amount obtained from foreign ores, 168,835.83 kilograms, and that derived from domestic and foreign sweeps, 47,042.65, the weight of silver secured from domestic ores, 180,374.40 kilograms, is regarded as Germany's production for 1903. Its commercial value would be \$3,144,124, equivalent, at 54 cents per ounce, to 5,822,452 fine ounces.

The gold and silver reported above as derived from foreign ores is neglected in the estimate of the world's product, it having been elsewhere included; that obtained from sweeps of every nature is also omitted.

AUSTRIA-HUNGARY.

In 1903 Austria, according to official information received by this Bureau, produced gold ore to the value of 55,860 crowns, equivalent (taking the crown at 20.3 cents) to \$11,340, which would represent 17.06 kilograms, or 548.5 ounces of fine gold. Hungary's yield was 3,354.87 kilograms, valued at 11,003,996 crowns, or \$2,233,811, which would, at the United States valuation of \$664.60, represent 3,362.66 kilograms, or 108,060.6 ounces of fine gold. The product of the Empire, therefore, amounted to 108,609.1 ounces, of the value of \$2,245,151, an increase in value over the previous year's product of \$73,800, or 3+ per cent.

During 1903 the yield of silver ore in Austria amounted to 21,957.800 kilograms, of the value of 2,871,309 crowns, or \$582,876, which, at the average price during the year, 54 cents, would represent 1,079,400 fine ounces. In the same period the mines of Hungary produced 17,237.576 kilograms of silver ore, worth, at 84.05 crowns per kilogram, 1,448,818.27 crowns, or \$294,110, equivalent to 544,648 fine ounces. The total silver yield of the Empire in 1903 was, therefore, 1,624,048 fine ounces, of the value of \$876,986, a decrease, as compared with the yield of 1902, of 257,084 fine ounces.

Appended is a statement of the production of the precious metals in the Austro-Hungarian Empire from 1897:

Year.	Gold.		Silver.	
	Weight, fine.	Value.	Weight, fine.	Coining value.
	<i>Kilos.</i>		<i>Kilos.</i>	
1897	2,993	\$1,989,000	67,952	\$2,824,100
1898	2,798	1,859,500	56,443	2,345,700
1899	2,925	1,943,900	58,961	2,450,000
1900	3,223	2,141,900	61,871	2,571,300
1901	3,215	2,136,692	62,118	2,581,617
1902	3,267	2,171,351	58,649	2,436,953
1903	3,380	2,245,151	50,524	2,099,779

FRANCE.

France produces no gold, and no statistics regarding the production of silver in that country in 1903 have reached this Bureau, but United States Ambassador Porter transmits the final corrected figures for 1902, which are 23,300 kilograms, of the value of 2,330,000 francs—a valuation considerably in excess of the average price of silver in that year, which was \$17 per kilogram. The commercial value of the product for 1902 would, accordingly, be \$396,100, which would represent 747,359 fine ounces. It is stated that the output of the refineries in 1902 amounted to 64,354 kilograms, which, at \$17 per kilogram, would be worth \$1,094,018. This would include the amounts derived from both domestic and foreign ores and sweeps; consequently it is much in excess of the actual output of the mines of the country.

In the absence of any figures for 1903, the yield for that year is

assumed to have been the same as that of the preceding, viz, 747,359 fine ounces, of the commercial value, at 54 cents per ounce (the average price in 1903) of \$403,574.

SPAIN.

According to official information furnished by the Government of Spain, that country in 1903 produced 8.146 kilograms of gold, valued at 37,797 pesetas. Assuming the gold to have been fine, it would be worth, in United States money, \$5,414. It is therefore evident that in the value above given—37,797 pesetas—the depreciated silver peseta, worth about 14.3 cents, is meant.

From the same source it is learned that the silver yield amounted to 112,978 kilograms, valued at 14,454,033 pesetas. Assuming the silver as reported to have been fine, it would be worth commercially (at \$17.4311 per kilogram, the average price during 1903) \$1,969,331. Between this amount and the valuation given in pesetas (14,454,033) when converted, at 14.3 cents to the peseta, into United States money, there is a slight discrepancy, due doubtless to the price at which the value of the silver is computed. The value given is equivalent to 3,636,909 fine ounces. In addition to this, Spain in 1903 produced 56,687 metric tons of silver-lead. Assuming that this contained the same percentage of silver as did the yield of 1902, it contained 443,967 fine ounces. Consequently the silver production of Spain for 1903 amounted to 4,090,876 fine ounces, of the value of \$2,209,073. It exceeded the estimated yield of 1902 by 300,604 fine ounces.

A recently published report by the bureau of mine inspection of Spain contains the following statement of the gold and silver production of the country during the last two years:

Year.	Gold.	Silver.	Silver-lead.
	<i>Kilos.</i>	<i>Kilos.</i>	<i>Metric tons.</i>
1902.....	14.2	96.975	74,370
1903.....	8.1	112.978	56,687

PORTUGAL.

Thus far this Bureau's interrogatories have elicited no definite information regarding the production and export and import of the precious metals in Portugal. The production, however, is slight, so small in fact that it might be disregarded in a statement of the world's output. In the Report of the Production of 1897, basing the figures on the most reliable data obtainable, the gold production was placed at 17 kilograms, worth \$10,356, and the silver at 79 kilograms, of a coining value of \$3,037.

The following table contains a statement of the production of gold in Portugal since 1896:

Year.	Weight.	Value.	Year.	Weight.	Value.
	<i>Kilos.</i>			<i>Kilos.</i>	
1896.....	28.0	\$18,528	1900.....	2.6	\$1,725
1897.....	17.0	10,356	1901.....	2.0	1,329
1898.....	7.0	4,700	1902.....	2.0	1,329
1899.....	1.7	1,121			

The figures for the last four years are quoted from Mines and Quarries.

No data whatever are at present obtainable regarding the production for 1903, and it will be noticed from the above that since 1896 the yield has rapidly diminished, with the exception of the year 1900, when there was a slight increase. It is believed, however, that the figures given represent the product of both the mines and the refineries. The gold production for 1903 is therefore placed at 2 kilograms, worth \$1,329.

ITALY.

Mr. Lewis M. Iddings, secretary of the United States embassy at Rome, answering this Bureau's interrogatories, states that Italy in 1903 produced gold to the value of 138,320 lire, or \$26,696, which would be equivalent to 1,291 fine ounces, and silver to the value of 2,256,066 lire, or \$435,421, which would represent 806,335 fine ounces.

In the case of gold there was a marked increase as compared with the outturn of 1902, which according to the *Revista del Servizio Minerario* of 1902, was valued at 51,348 lire, or \$9,910, equivalent to 479 fine ounces. There was a decline in the production of silver, the product in 1902 having been valued at \$478,074, which at 53 cents per ounce would represent 902,026 fine ounces. There was therefore a decrease of 95,691 fine ounces.

GREECE.

Under date of February 1, 1904, Mr. John B. Jackson, United States minister to Greece, informs this Bureau that the country to which he is accredited produces no gold, and that it is impossible to state how much silver is won from the native mines.

Gold does not exist in Greece in quantities sufficient to render mining profitable. It is, however, found in the alluvium of the island of Scyros and in the iron pyrites of Poliana and in small quantities in the silver extracted from lead of Laurium. Silver is found in all the lead ores of the country which contain from 250 to 4,000 grams of silver to the ton of metal.

According to Mines and Quarries for 1902, Greece in that year produced argentiferous lead to the value of 7,050,600 francs, and in 1901 the value of the silver-lead was 7,939,800 francs. The *Statistique de l'Industrie Minérale* for 1901 places the value of the silver produced by Greece in that year at 3,389,000 francs. The silver values, therefore, were about eight-nineteenths of the whole, which is about the same as the Australian silver-lead. The changes in the prices of silver and lead in 1902 not having been sufficiently marked seriously to affect this proportion, it is assumed that it held good for 1902, and that of the total value of the silver-lead—7,050,600 francs—eight-nineteenths, or 2,968,674 francs, represents the silver. Its value, therefore, was \$572,954, which is equivalent to 1,062,177 fine ounces, which approximately confirms the estimate given in the last report.

In the absence of any data for 1903 the figure for 1902 is repeated, the value of the product, however, owing to the rise in silver, being increased to \$573,576.

TURKEY.

This Bureau has received no report on the production of the precious metals in Turkey in 1903. It is therefore necessary to repeat the estimates for 1902, which are derived from the *Statistique de l'Industrie Minérale*, and are as follows: Gold, 31 fine kilograms of the value of \$20,651, equivalent to 999 fine ounces; silver, 458,830 fine ounces, worth \$243,180; in the case of silver the commercial value must be raised to \$247,768.

It is stated that argentiferous galena is worked at Balia and at Avnie, and that the ore yields about 82 per cent of lead and from 1½ to 4 per cent of silver. A little alluvial gold is obtained in Thessaly and in some of the villages of Macedonia.

PRODUCTION OF THE PRECIOUS METALS.

[From the report of the director of the French mint for 1901.]

Year.	Gold.		Silver.	
	Weight.	Value.	Weight.	Value,
	<i>Kilos.</i>	<i>Francs.</i>	<i>Kilos.</i>	<i>Francs.</i>
1893	13.0	44,240	7,165	740,167
1894	12.0	38,010	7,809	809,872
1895	8.0	26,595	10,208	884,415
1896	10.7	35,497	7,007	743,445
1897	21.9	73,457	7,110	516,254
1898	21.0	72,300	4,422	982,500
1899 ^a	21.0	72,300	4,422	982,500
1900 ^b	37.0	127,000	13,352	1,335,000
1901 ^b	46.0	159,000	14,942	1,494,000
1902 ^b	31.0	107,000	14,305	1,260,000

^a Figures for 1898 repeated.

^b From the *Statistique de l'Industrie Minérale*, 1901 and 1902.

MINING IN TURKEY.

[By LEON DOMINIAN. From *The Engineering and Mining Journal*, New York, August 4, 1904.]

Mining in the regions now constituting the Turkish Empire is of high antiquity. The traveler in eastern Europe and in Asia Minor often encounters old mine workings. As a rule they are indicative of valuable ore bodies, the surface of which has barely been scratched. It may also be said that the prospecting of these old mines turns out generally to be more profitable than the examination of new fields; this fact is well known to the few mining men of Constantinople and Smyrna, who act accordingly.

To prospect on Turkish soil is usually a hazardous undertaking, because of the lack of orderly government; the geologist is hindered in his field work, general knowledge of the geology of Turkey is therefore fragmentary. No attempts have been made to establish an active geological survey. A mining department was created in Turkey twenty-five years ago, and a code of mining laws was compiled after the system then in vogue in France. These laws, on the whole, were liberal, and were worded entirely in the interests of Ottoman citizens. A corps of mining engineers was formed, the members of which were detailed to the various provinces with instructions to do their best to promote mining activity. The results, however, have been disappointing. At the present day the only business transacted within the departmental offices is the collection of taxes and royalties.

Through the pressure exerted by their respective embassies, foreigners have occasionally traveled through the provinces under the safeguard of a military escort. It is due to them that we know something regarding the geological features of the region. The country itself has been impoverished to such an extent as to be utterly unable to finance any commercial undertaking whatever. Hardly a dozen mining concerns, and these are the oldest in the land, have been able to stand against the general industrial depression.

* * * * *

GOLD.

Gold is mined in small amount. The mining department of Turkey controls most of the production. The chief producers are the mines at Bulgar Daghi in Asia Minor. Some placer deposits are worked after rainfalls in the Karadagh of Macedonia, not far from Salonica. A small return is considered satisfactory, for 40 cents is considered ample compensation for a day's panning. A gold mine in the vicinity of the Dardanelles was sold two years ago to an English syndicate, but no work on the property has been reported.

SILVER.

Silver is found near the town of Balia, in the province of Hudavendighar. It occurs associated with lead in a quartz gangue in eruptive rocks. The mines are owned by a native company, and are under the management of French engineers. The imperial mint derives its supply of silver mostly from the mines worked in the various provinces. Some silver is also produced at the gold mines of Bulghar Daghi, mentioned above, and a little work is done in the province of Trebizond.

* * * * *

ASIA.

CHINA.

As China publishes no statistics of her production of the precious metals this Bureau is compelled to have recourse to statements of imports of Chinese bullion into other countries.

From official reports of the German Empire it is learned that 661 kilograms of bar gold were imported by that country from China in 1903. Assuming it to have been fine its value was \$439,301, equivalent to 21,251 fine ounces.

According to the report of the Japanese mint for the fiscal year ending March 31, 1903, Chinese bullion to the amount of 1,265,453.22 mommee, equivalent to 4,745,450 kilograms, was deposited in that year. As this was only 0.900 fine its value was \$2,838,443, equivalent to 137,310 fine ounces. In the absence of other data this amount—received in the fiscal year—is assumed to equal that deposited in the calendar year 1903.

The Annual Statement of the Trade of the United Kingdom for 1903 shows no gold imported into Great Britain from China in that year, nor was there any imported into the United States, according to the United States Bureau of Statistics.

The Trade and Navigation Accounts for British India for the year ended March, 1904, contain the following statements of the imports of gold coin and bullion into India from China in recent years:

	Rupees.
1901-2.....	8,036,942
1902-3.....	7,334,032
1903-4.....	17,614,220

The monthly imports remained fairly constant during the last two years. Their value for the calendar year 1903 would be 12,474,126 rupees, or \$4,046,981. While the above statement contains both bullion and coin, the amount of the latter must be so small as to be a negligible quantity. The value, \$4,046,981, would represent 195,773 fine ounces.

Assuming, therefore, that China's gold production in 1903 was equal to her exports to these three countries, which doubtless receive nearly

if not all her output, she produced in that year 354,334 fine ounces, worth \$7,324,734, or \$1,407,067 less than her estimated product in 1902.

MINING IN FUKIEN, CHINA.

[From United States Consul Gracey, Fuchau, China, April 25, 1904.]

French mining experts have been making extensive examinations of the mineral resources of the northwestern prefectures for the last two years and have found large deposits of coal and gold. These both giving promise of very profitable returns, the Société d'Études du Fukien applied for mining concessions in the districts of Kienning, Shaowu, and Tungchow.

I can not learn that any objections have been raised by other nations to the granting of said privileges. A British company during the same period was exploiting mining districts in the southern part of the province, in the vicinity of Amoy, but has not yet succeeded in obtaining satisfactory arrangements, as it is also asking for the privilege of constructing a railroad from the mines to tide water at Amoy. The privileges desired by this British company will probably be granted at an early date.

The rights are secured through the "mining board" at Peking and the approval of the provincial authorities.

KOREA.

Mr. Horace N. Allen, United States minister to Korea, informs this Bureau that the declared exports of gold bullion and dust from that country in 1903 were valued at 5,456,397 yen, equivalent, in United States money, to \$2,717,286. Of this amount, \$104,580 went to China and the balance to Japan. Practically all this gold came from the mines at Unshan. In addition to the above, gold concentrates to the value of \$69,556 were shipped; hence, the declared exports of gold in 1903 amounted to \$2,786,842. In former years it has been necessary to allow liberally for clandestine exports, but these are now a small percentage of the total. With due consideration for these this Bureau places Korea's gold production in 1903 at \$3,000,000, which would represent 145,125 fine ounces.

According to the London Board of Trade Journal of June 23, 1904, Korea's declared exports of gold for the last five years were as follows:

1899	£293, 338
1900	363, 305
1901	509, 738
1902	516, 961
1903	557, 007

The last amount is equivalent to \$2,710,674, thus corresponding closely with the figure above given. Korea produces no silver.

GOLD MINING IN KOREA.

[By H. C. PERKINS. From The Engineering and Mining Journal, New York, April 7, 1904.]

Old workings indicate that gold was produced in Korea before foreigners from the western nations were admitted into the country. Until the advent of the American miners, less than ten years ago, the mining methods continued to be of the most primitive character, such as were probably employed thousands of years ago. The greater number of the gold veins and placer veins are situated in the northern part of the Korean peninsula. The land rises from the sea to heights of three and four thousand feet and is deeply channeled by water courses. These have made precipitous hills and broad, flat river beds. On the hills there is usually a fair quantity of pine, oak, and maple, the trees affording good firewood and timber of ordinary dimensions. Large mill timbers are brought from abroad.

The latitude of Korea extends from 34° to 43° north. The climate is vigorous and healthy; cold in winter and hot in summer, not unlike that of New York State.

Previous to the coming of foreign miners into the country, the ore from the veins was extracted to very limited depths by the use of a crude gad and hammer; the ore obtained was crushed under rocking stones, and the metal panned from the resulting sand. No attempt was made to save the gold when intimately associated with base minerals.

The placer mines are in the modern river beds. They are worked by the most simple methods of excavation, and the gold is obtained by panning the richer portions of the deposit. The dredging system is sometimes followed, the dredge being a wooden bucket attached to a well-sweep arm, which is operated by manual labor.

* * * * *

The source of information upon which estimates are based is not such as to give them much weight. The people of Korea are so poor that little gold is used in the arts, and there being no tax upon it, no important amount is likely to be carried out of the country through any but the regular banking channels; therefore, the customary additions which are added to known quantities are likely in this instance to exaggerate the yield. At present but one enterprise in Korea, operating under modern mining methods, is producing any considerable quantity of gold.

Korea will be a gold producer of importance for many years; vein mining on a large scale is only starting and the placer deposits, which are very extensive, are likely to yield largely when they are attacked by modern dredging methods. There are copper deposits rich enough to be worked by the natives in the northern part of the territory. Coal of an inferior quality is found both on east and west coasts.

My observations extended over only the northwest portion of the country, where I found the veins almost exclusively in granite, and although dikes are not infrequent, the veins are not often seriously faulted. Workings have already reached a maximum depth of 1,000 feet below the outcrops. The gold-bearing lodes are generally well mineralized with the sulphides of iron, lead, and zinc, but they are only occasionally of such size as to justify any considerable outlay for their exploitation.

At present there is a German, an English, and an American company at work upon mining concessions; the last mentioned, known as the Oriental Consolidated, being the only one that has reached a productive stage. This company is operating five California stamp mills scattered over 250 square miles of territory, employing in all 200 stamps, which crush 18,000 to 20,000 tons of ore per month. The working costs are about \$2.25 per ton. This cost is low, considering the existing conditions; as low as the expenditure on similar work in the United States. Miners' wages are 25 cents gold per day, or about double the ordinary daily wages of the country. This is the first instance which has come to my knowledge where the costs per ton for gold mining have been as low in a low-wage locality as in the United States and other high-wage countries. Mining men usually expect that the working costs will not be low in a locality where the inhabitants are inexperienced in mining work. Education is slow and costly, and it is almost an axiom that mining can not be done profitably in a new country unless the ore deposits are of exceptional richness or of unusual extent. In the one case economy is not essential to success, and in the other the aggregate value justifies the expense and time required for establishing the business on a paying basis.

* * * * *

Six years ago the Korean had no knowledge of any of the modern mining methods or appliances; he wedged out the surface ore with a gad, conveyed it in baskets, crushed it under stones, and washed it in his pannakin. To-day he drives tunnels, sinks shafts, stopes ore bodies, timbers, and manages hoisting engines, all with sufficient skill to produce excellent economic results.

* * * * *

MINING INTERESTS IN KOREA.

[By S. HERBERT WILLIAMS. From The Engineering and Mining Journal, New York, March 3, 1904.]

With an area equal to that of Kansas; with a recorded annual export of gold amounting to \$2,500,000, the greater part of which is the output of two foreign concessions granted within six years; possessing excellent agricultural lands, a very considerable forest reserve, a good climate, and an increasing market for modern products, Korea to-day occupies an economic as well as a strategic position.

* * * * *

The known gold mines and alluvial deposits of the region offer no marked distinction to those found in other parts of the world, and as in other mining districts the industry has undergone periods of activity and depression; mines have been

opened and closed, to be reopened later on by those who wished to try their fortune; other mines have been worked to a point where the natives were unable to handle the water, while operations have ceased in some cases by reason of those numerous causes incidental to mining, such as expiration of lease (all mines being the property of the Crown) low-grade ore, and metallurgical difficulties. Gold is produced from two sources, vein and alluvium, the former offering difficulties which the native can not overcome with his tools. Since foreign companies have been operating in Korea the outside miners have been supplied with material stolen from the foreign concessions, the native company having a fixed price for a foot of fuse, a stick of gelignite, and stated prices for drills. This encouraged the native to steal. Rigorous measures to prevent this theft by searching the miners on leaving work were successful.

The principal difficulty in vein mining is the pumping of water. In mines having a sloping entry they employ a means of draining their mines which in its way is admirable, although perhaps it is more spectacular than efficient. In an incline shaft, for instance, several sets of these men would raise the water from one to the other, the water being caught in dams between each set of operators. The water is raised by dipping the buckets in the lower dam and swinging them to the upper.

In the absence of steel tools and explosives the breaking of rock is necessarily slow. One of the methods employed is to build large fires in the different faces and cool them suddenly with water; the effect of this is that while an amount of ore is loosened the inclosing walls are also disintegrated, resulting in the handling of 5 tons of rock for 1 ton of ore, and rendering the hanging wall exceedingly dangerous.

The ore is crushed between two stones, the upper one having its bottom cut in the form of an arc. This is rocked to and fro on a flat granite boulder, producing a pulp equivalent to a 30-mesh screen. After washing, the coarse pulp is sometimes reground between two smaller rocks.

* * * * *

Alluvial mining is followed by a large number of natives, but no authentic estimate is obtainable of the amount of gold recovered. It finds its way through different channels to the Japanese gold buyers, some of whom are purchasing for banks, others acting for themselves. The gold is made up into packets of 1 yang each, a yang being equal to 1.223 ounces troy. The method employed is to clear what the Australians call a "paddock," varying in size from 50 feet to 100 feet square, and remove some distance from the pit 15 feet of overburden; the wash is found next to the bed rock, from 18 inches to 3 feet 6 inches thick. The wash is usually carried to the nearest stream in a basket-like receptacle made of millet stalks, carried by coolies on their back in a frame suspended from their shoulders.

All things being considered, it is doubtful if the alluvial deposits could be turned to better account by using western methods. Although cheap labor is available in plenty, it is necessary to employ European or American supervision; the main drawbacks are removal of overburden, lack of fall (1 foot in 1,000 feet), limited extent of deposits, and a great quantity of bed-rock water to handle. Alluvial mining extends over a large portion of the country, and is usually undertaken by a small syndicate of merchants who furnish the coolies with shoes, shelter, and food, and a portion of the recovered gold, generally one-third. The coolies are, therefore, interested parties, and the operations are based upon mutual risk. While there are gravel patches that are payable, a great deal of ground is turned over without profitable results, and it is certainly regrettable to see fertile valleys destroyed forever by a class of transient coolies who roam over the country ruining farms on which families have lived for generations.

Steam power, when using coal, is the most expensive consideration in Korean mining, the coal being imported from Japan; but it is possible that Korea may supply her own demands by giving foreigners an opportunity to develop the seams known to exist at tidewater.

The Korean railroad system extends for 28 miles, running between Seoul, the capital, and Chemulpo, the most important seaport. The rolling stock was made in the United States, and the road was built by Americans. It is now absorbed by the Seoul-Fusan Railroad Company, which is building a road from Fusan, in the south, to the capital. On reference to a map of Korea it will be seen that the natural extension of this road will be to Ping-Yang, and then to Wiju, on the Yalu River, all on Korean soil.

Ping-Yang is one of the most important cities in Korea. It is situated on the Tai-Tong River, which is navigable to within 5 miles of the city by coastal boats, and is situated in the center of the mining districts, and on the main road from Seoul to Peking. The population is estimated to be between 50,000 and 100,000. Ping-Yang is the commercial center for a large district; most of the business sites are already in

the hands of the Japanese, who are the bees in the commercial hive of the country, and the Dai Ichi Genko has already purchased a site for the extension of its banking system.

Wiju having been declared an open port, must increase in importance. It is on the trade route of upper or northern Korea, and with the establishment of foreign firms and consuls, its value as a business center will be recognized. The Seoul-Wiju railroad concession has not yet been granted, and it is therefore in order for some enterprising railroad capitalist to apply for the concession to build and operate a road which at some time will connect with the Trans-Siberian system and form the principal outlet of the East.

Opportunities for the investment of capital, apart from mining, which will soon account for an annual output of gold amounting to \$3,500,000, seem to present themselves on every hand, but the Government successfully evades the granting of concessions of any kind by playing one nation against another until the city of Seoul has been transformed from the seat of government to a vortex of intrigue. Agents of influential Japanese companies and individuals are found everywhere. Count Shebusawa, the financial magnate of Japan, is ably represented. He is interested in the Seoul-Fusan Railroad, and is president of the Dai Ichi Genko (the first bank), which has established branches in every prominent town. This same bank has installed a gold-buying department in its Seoul bank, with an assay office which would do credit to a much larger institution. The notes of this bank caused a great deal of trouble recently, because of the opposition offered to their issuance by Korean officials, but further trouble was averted by the Korean Government withdrawing the notice of prohibition. The notes are made payable to bearer in Korea, and are redeemed with, and backed by, Japanese currency, so it is stated. In the principal business centers these notes are accepted and form the circulating medium, but in the country districts they are refused, where silver and even spurious nickels are accepted in their stead, a fact which proves that confidence is a creature of slow growth. Whatever may be said against them, the notes certainly prove acceptable to business men who find a fluctuating silver currency anything but satisfactory. The Dai Ichi Genko promises to withdraw these notes on the establishment of a Korean bank, but it is evident that when they gain a wide circulation these notes will be as difficult to replace as the existing system. The most progressive Koreans desire a Korean currency with a Korean national bank issuing its own notes, but lack of cash, want of confidence, even among those who could furnish the capital, and Japanese opposition are responsible for its nonexistence. The high rates of interest charged by foreign banks in the East (7 to 8 per cent), and the probability of a profitable exchange business, might well offer inducements to American bankers, who should not lose sight of the ever-increasing shipping tonnage and exports leaving the Pacific coast.

Should Korea, in spite of intrigue and a desire to acquire the country by the nations now at war, maintain her independence, a more liberal policy may be expected from the Korean Government than that hitherto pursued, and the gradual disappearance of the exclusiveness and antipathy which permeate all official circles as well as the ignorant classes. If Korea would invite foreign capital instead of opposing it, and discontinue the "squeeze" system, where one official extorts money from his inferior, a system which is recognized from the village headman to the ministers of high rank, making the poor poorer, and killing whatever ambition the native has to acquire wealth, the empire would change from a "hermit nation" to an industrial hive, and no one would reap a greater benefit than the native people who now live from hand to mouth as the victims of usurious money lenders.

KOREA AS A MINING CENTER.

[By S. HERBERT WILLIAMS, M. I. M. M. From the Mining Journal, London, January 10, 1904.]

From a mining standpoint little or nothing is known of the resources of the little Empire which now stands so prominently before the public. This is due in a great measure to the reticence of the Koreans, who do not invite foreigners to their shores, and who look with distrust upon those who seek concessions from the Government for industrial pursuits.

A number of concessions have been granted, however, four of which are mining. All mines are the property of the imperial household, to whom application must be made for a concession. This is generally done through the minister representing the nationality of the applicant. It is here that trouble begins, because, as before stated, the Koreans do not want foreigners exploiting the resources of the country. Consequently the application is at first flatly refused. If Korea succeeds in maintaining

her independency, which at the present moment looks doubtful, she must eventually grant concessions of some kind to the subjects of Belgium, France, and Italy, as she can not discriminate between nations with whom she has treaties. America, England, and Germany have been granted mining concessions, Russia a timber concession, while Japan has been fortunate in many ways, including mining and railways.

No geological or mineral survey has been made of the country, whose area is 82,000 square miles, but enough is known to state that it possesses enormous mineral wealth, which includes gold, silver, copper, iron, coal, and there are districts which have given excellent oil indications.

* * * * *

It has been pointed out to the Korean officials that they will better safeguard their independence by inaugurating a code of mining laws, allowing companies of all nationalities to turn their wealth to account, and at no distant date this must occur.

* * * * *

Korea is never likely to be the home of concession hunters who have not cash available for negotiating the transaction, for while it is possible to do many things in the East, providing you have ready cash, the Korean official is too wide-awake to allow a valuable mine to pass into other hands without substantial compensation, and to those applying for mines it simply resolves itself into the question, Is the property worth the money that it will require to consummate the transaction? On the other hand, if a permit is obtained to make a selection, it is always possible to make every investigation, and there is no reason or excuse for any mistake.

* * * * *

BRITISH INDIA.

Under date of March 24, 1904, Mr. R. F. Patterson, United States consul-general at Calcutta, informs this Bureau that 599,208 ounces of gold, valued at 34,087,854 rupees (£2,272,524), were obtained from the mines in Mysore and Hyderabad in 1903, adding that these figures are approximate and subject to correction.

The Economist (London), of January 9, 1904, states that "so far as published reports go, they show that the total output last year amounted to 601,411 ounces of bar gold," the fineness not being stated.

The Mining World (London), of January 30, 1904, places the product of the Kolar fields alone at 597,786 ounces, of the value of £2,287,000. Between the last statement and that of the United States consul there is a difference in fine ounces of (approximately) 3,500, basing the calculation on the values given. Subsequently Mr. Patterson furnished an official statement showing that in 1903 the mines of India produced 18,760 standard kilograms of gold, which would be equivalent to 17,196.66 fine kilograms. The value of the product in United States money would be \$11,428,900, which would represent 552,873 fine ounces. The product of 1903 therefore exceeded that of 1902 by 89,049 fine ounces, or \$1,840,800.

The following table shows the gold production of India from 1892:

Year.	Weight, fine.		Value.
	Kilos.	Ounces.	
1892.....	4,576.916	147,150	\$3,041,818
1893.....	5,740.166	184,541	3,814,914
1894.....	5,840.083	187,756	3,881,319
1895.....	7,006.083	225,243	4,656,243
1896.....	9,224.416	296,552	6,130,547
1897.....	10,904.666	350,596	7,247,241
1898.....	11,708.583	376,412	7,781,524
1899.....	13,028.583	418,850	8,658,796
1900.....	14,197.333	456,435	9,435,548
1901.....	14,138.000	454,528	9,395,932
1902.....	14,428.000	463,827	9,588,147
1903.....	17,196.667	552,873	11,428,900

The gold yield for 1902 was the largest in the history of the country. India produces no silver.

INDIAN GOLD MINING—INCREASING PROSPERITY IN 1903.

[From the Mining World, London, January 30, 1904.]

ANOTHER RECORD YEAR.

The steady progress that has characterized the gold-mining industry at Kolar for many years past, in fact ever since modern mining commenced there some three decades ago, attended in a marked degree the operations during 1903. The tide of prosperity continues to flow without showing any sign of abatement, and each month a new high-water mark, as regards gold production, has to be recorded. How long this satisfactory condition of things will last it is impossible to say, but certainly the outlook to-day is brighter than it ever was. Last month's output beat all previous records—53,984 ounces—making the total production for the year just ended no less than 597,786 ounces, of the value of £2,287,000. The interim dividends have been above the average, and, considering how the returns have increased, it goes without saying that when the balance distributions are announced they will compare very favorably with those for the preceding year.

RECENT IMPROVEMENTS.

Anyone visiting the Kolar gold field to-day who was acquainted with it but five years ago would be amazed at the changes that have taken place even within that short period. True, the industry was in a thriving condition then, but the operations, both at surface and underground, are now carried on upon a scale the magnitude of which was scarcely dreamed of at that time. Acting on the very sound principle that it is desirable to learn to walk before attempting to run, the management had erected, from time to time, small mills with light stamps, which were scattered here and there over the different properties, but these have now given place to large crushing mills with heavy stamps and all the most modern improvements, situated in central positions and driven by electrical power. The cyanide works have also been largely augmented, and workshops have been established where boilers can be repaired and most of the heavy castings made, as well as skips, cages, underground and surface wagons, iron roofs, etc. The workshops are an important addition to the surface equipment, as they will obviate the cost and delay attendant upon ordering machinery and plant in this country. Moreover, the success which has resulted from the application of electrical power to the mills, compressors, hoists, etc., has led to the formation of a company with the object of installing electrical plant for the supply of a cheap motive power to the workshops. The visitor to the field to-day would also find that whereas five years ago the mines gave employment to about 20,000 natives, they now employ upward of 30,000. At the same time the conditions of living have been greatly improved, and although it seems impossible to avoid isolated cases of plague from time to time, the disease does not assume, thanks to the precautions of the medical staff, anything like epidemic proportions. The effect of all these improvements—and there are many others to which we have not alluded—is already being seen in a reduction of the working costs despite the ever-increasing depths which the exploratory works are attaining.

CHAMPION LODE IN DEPTH.

This leads us to say a word or two on a subject which, although it does not come within the scope of a review of the past year's operations, calls for some comment, inasmuch as it appears to have agitated the minds of not a few investors in Indian mines within the last week or ten days. We refer to certain views put forward by Mr. A. Mervyn Smith in a paper recently read before the Institution of Mining and Metallurgy on the subject of the Geology of the Kolar Gold Field. Mr. Mervyn Smith mentioned that all observers were agreed that the auriferous rocks are bent into a synclinal fold, the reefs being found near the middle of a band of schist, and he went on to say that "as the Champion lode occurs about the middle of the schist band and as its dip is coincident with the bedding of the schists (an angle of 45°), it is clear that it will not extend downward in depth indefinitely." The bottom of the basin, Mr. Mervyn Smith thinks, will be found at a vertical depth of 3,000 feet or probably less. If this view be correct, of course it puts a distinct limit to the lives of the mines. But it is well to bear in mind that the question is one upon which

geologists hold widely divergent views, and also that when dealing with quartz mines, where the pay ore is confined within "chutes" of ever-varying size and richness, it is absolutely impossible to form anything like reliable estimates. Conjectures may be made and more or less plausible arguments adduced in support of them, but, after all, they amount to nothing more than mere conjectures. Those who know the history of the field best tell us that if some geologists had been listened to the Kolar mines would not only not be in the position they are in to-day, but probably would not be in existence at all. Certainly no one has had better opportunities of studying the geology of the Kolar field than Messrs. John Taylor & Sons, and their views as to the ore chutes living at much greater depths than that mentioned by Mr. Mervyn Smith may be gathered from the fact that they have recently recommended the sinking of a new vertical shaft on the property of the Champion Reef Company, which is designed to cut the lode at a depth of from 3,700 to 4,000 feet. We think, therefore, holders of Indian shares need feel no uneasiness with regard to the somewhat disquieting statements referred to, which we would not have alluded to but for the publicity given to them by a morning contemporary.

* * * * *

INDIAN GOLD PRODUCTION.

[From the Economist, London, January 9, 1904.]

In its comparatively small way, the gold-mining industry of southern India made satisfactory progress in the past year. Fortunately, it was free from those interruptions from scarcity of water and recurring epidemics among the natives which more or less seriously affected it in the two or three preceding years, and, mainly owing to the recent largely increased developments in the four principal mines, the production of gold in the twelve months constituted a fresh record for India. Very nearly the whole yield of the precious metal continues to be obtained from half a dozen mines situate in the Kolar district of Mysore, the seventh mine of the group—the Coromandel—having been out of the list of contributors since August, 1902, when the mill was shut down pending the more thorough and systematic opening up of the property, which has since been effected, apparently, with favorable results. So far as the published returns go, they show that the total output last year amounted to 601,411 ounces of bar gold, including the outside mines, of which the Kolar properties contributed 597,786 ounces, as compared with 514,291 ounces in the preceding twelve months and 504,348 ounces in 1901, an increase of 83,495 ounces in the former case and of 93,408 ounces in the latter. In the past ten years the yield has risen nearly 200 per cent, although the number of producing companies has been practically unchanged, while the aggregate value of the production of the Kolar district has now exceeded £18,000,000.

RESULTS OF CEYLON GOLD INVESTIGATIONS.

[From the Board of Trade Journal, London, January 7, 1904.]

The Ceylon Observer of November 21 publishes extracts from the report of Mr. G. G. Dixon, who was appointed by the colonial office to make an examination of the island and report upon the quartz reefs and alluvial deposits.

Mr. Dixon sums up the situation as follows:

"The present general survey of the country has proved that there are practically no gravel terraces and that the shallow deposits which are worked by the digger in other countries would not be sufficiently remunerative or extensive. Had there been any appreciable quantity of gold-bearing gravel in the island it is only reasonable to suppose that during my journey of 3,041 miles, of which 1,078 miles was done on foot, I should have found some of it. Hundreds of tests were made as I worked from point to point; in fact, wherever gravel was found it was tested. The above refers to surface work, and the fact must not be lost sight of that we are as ignorant as ever as to what minerals occur in depth.

"I am therefore able to report upon the shallow workings, river beds, etc., as being unprofitable to work by the gold-digging system. By the dredging system I believe, if suitable places were secured and the gold-saving appliances were modified to suit the conditions necessary for saving both gems and gold, that the undertaking, if properly managed, would pay.

"From some hundreds of tests made of quartz from reefs all over the country—for it is very abundant—I find that the highest values obtained were not remunerative. The quartz reefs of this country are dissimilar from any I have yet met with. They give one the impression that they are not fissure veins at all, but simply a rearrange-

ment of the quartz particles of gneiss. I do not think that the gold which has been found in the gravels had its origin in the gneiss, but in either a capping rock, which has long since been worn away or possibly in a fold of hornblende schist, such as occurs in the Kolar gold field, Mysore, India. If my theory is correct, then we must look for gold produced from that capping rock; not in the hills, but deeply buried. If an old-time river bed could be found on the plains and explored, it would elucidate this point. In places like the lake at Nuwara Eliya, which must have been a swamp at some time; in the low country, where two or more streams meet, and where there is little or no scour, as in Malawana; and at the junction of the Sitawaka and Getaheta, the gold would settle and remain for all time.

"There is no information to be had on the subject of deep leads, as no boring has yet been carried out to prove the existence of gold or other minerals in depth."

JAPAN.

This Bureau has received no direct returns regarding the production of the precious metals in Japan in 1903, but according to the report of the director of the imperial mint at Osaka, for the fiscal year ending March 31, 1903, it appears that Japan (including Formosa) during that period produced approximately 803,574 momme of fine gold, equivalent to 3,013 kilograms, of the value of \$2,002,705. The silver output in the same year amounted to 4,481,417 momme, or 16,805 kilograms. At the average price in 1903, which was \$17.43 per kilogram, its value would be \$292,911.

In the absence of any data for the calendar year 1903, these figures are held to represent the production for that period.

NEW MINING LAW IN JAPAN.

[From the Mining and Scientific Press, San Francisco, March 19, 1904.]

The new mining law of Japan contains the following among its provisions:

"No persons other than subjects of the Empire or companies duly formed in accordance with the laws thereof are entitled to acquire mining rights.

"The right of mining may be canceled if operations are not commenced within one year from the date of the record in the Mining Register.

"Mining taxes will be imposed upon persons entitled to mining rights, but no business tax. No tax upon the mining of iron ores will be imposed.

"The tax on mining areas is 40 sen per year for every 1,000 tsubo (about 25 cents per acre).

"The amount of tax imposed on mining productions shall be 1 per cent of the value thereof.

"An additional mining tax may be levied by Hokkaido, urban, and ordinary prefectures, as well as cities, towns, and villages, not exceeding 15 per cent of the principal tax."

JAPAN'S NEW GOLD FIELDS.

(Officially valued at £400,000,000.)

[From the Mining Journal, Railway and Commercial Gazette, London, September 3, 1904.]

Mr. Arakawa, the Japanese consul-general in London, has received advices from Tokyo to the effect that the recently discovered gold fields at Iwato are expected to produce considerably more ore than was originally estimated. Doctor Watanabe, the well-known Japanese mining expert, has now been able to conduct a complete examination of a fourth of the gold-bearing region, and has estimated that it will produce ore of the value of £100,000,000. If the remaining three-fourths of the gold fields are, after examination, found to be similarly prolific in ore, Doctor Watanabe estimates that the Japanese treasury will be enriched to the extent of £400,000,000. The finance department of the Japanese Government is continuing its investigations, and it is expected that mining operations will be commenced at an early date.

TOKYO, August 28.—The recently discovered gold fields at Iwato have been inspected by Government engineers, and as the result of their report the Government has issued a proclamation entirely reserving the fields. The engineers estimated that the fields will yield gold to the value of £100,000,000, and are preparing to institute operations. The estimated yield is 30,000,000 yen per annum.—REUTER.

EAST INDIES.

BRITISH EAST INDIES.

Mines and Quarries (official) for 1902 states that British New Guinea in that year produced gold to the value of £42,214, or \$205,435, equivalent to 9,938 fine ounces. According to the same authority the product of the Federated Malay States in the same year amounted to £63,550, or \$309,266, equivalent to 14,961 fine ounces, most of which was from Pahang, while the yield of North Borneo or Sarawak was 32,000 fine ounces, worth \$661,499, a total of \$1,176,200, or 56,899 fine ounces.

The British East Indies produce no silver. In the absence of any exact data for 1903 the above figures for 1902 are repeated.

The Board of Trade Journal (London), August 4, 1904, states that the Federated Malay States in 1903 exported 14,811 ounces of gold from Pahang and Negri Sembilan, thus confirming the above estimate so far as the Malay States are concerned.

GOLD MINING IN THE FEDERATED MALAY STATES.

[From the Board of Trade Journal, London, July 7, 1904.]

The annual report for 1903 of Mr. W. H. Treacher, C. M. G., resident general for the Federated Malay States, which is published as a supplement to the Selangor Government Gazette of May 27, contains the following:

* * * * *

“*Gold.*—In regard to gold mining Mr. Treacher states that there is not very much progress to report. The prospects in the eastern portion of Negri Sembilan continue fairly encouraging. The Bersawah Gold Mining Company say for 1903 that crushing commenced on February 1 and continued with fair regularity to the close of the year, the result being that 3,739 tons of stone were milled for a return of 2,666 ounces of smelted gold, being an average of $14\frac{1}{3}$ pennyweights to the ton.

“The total export of gold in 1903 from Negri Sembilan, as shown by the trade returns, was 2,370 ounces, valued at \$98,000 approximately, as compared with 199 ounces, valued at \$7,089, in the previous year.

“The export of gold from Pahang was 12,441 ounces, valued at \$565,366, as compared with 19,554 ounces, valued at \$735,042, for the preceding year.

“The following figures give the results for the year at the principal gold mines now working in Pahang:

Mines.	Crushed.	Won.
	<i>Tons.</i>	<i>Ounces.</i>
Raub Australian Co	32,570	7,078
Malaysian Co	8,314	2,854
Kechau Gold Fields	1,931	469
Total		10,401

“Some 1,850 ounces in addition were obtained from the treatment of failings by cyanide, chiefly from Selinsing.”

DUTCH EAST INDIES.

According to the Jaarcijfers voor het Koninkrijk der Nederlanden, Kolonien, 1902, Borneo in that year produced gold to the value of 78,750 florins, or \$31,658, equivalent to 1,531 fine ounces; while Palembang yielded 707 kilograms worth, on the assumption that it was fine, \$469,872, and equivalent to 22,730 fine ounces; a total yield of 24,261 fine ounces. The output of silver amounted to 3,801 kilograms, all obtained in Palembang. Assuming that it was fine, its

commercial value at \$17 per kilogram was \$64,617. In the absence of any data for 1903 the above figures for 1902 are repeated for that year, the commercial value of the silver, owing to the rise in price, being increased to \$66,256, which would represent 122,696 fine ounces.

The amount of production of the precious metals in the Dutch East Indies since 1898 is exhibited in the following table:

Year.	Gold.	Silver.
	<i>Kilos.</i>	<i>Kilos.</i>
1899	113	58
1900	413	2,292
1901	1,633	3,727
1902	755	3,801
1903	755	3,801

AUSTRALASIA.

To Mr. Malcolm A. C. Fraser, government statistician of Western Australia, this Bureau is indebted for a statement, according to which the Australasian Commonwealth in 1903 produced 4,315,538 fine ounces of gold.

In the total the amounts ascribed to South Australia and New Zealand are those entered for export. The various States yielded the amounts set after their names, as follows:

	Fine ounces.
Western Australia	2,064,801
Victoria	768,006
New South Wales	254,260
Queensland	668,548
South Australia	20,285
Tasmania	59,892
New Zealand	479,746
Total	4,315,538

The value of the yield was \$89,210,088, the largest amount of gold ever produced by one country. Australasia's output for 1903 exceeded that of 1902 by 369,163 fine ounces, or \$7,631,277, an increase of 9.3+ per cent.

The Annual Report of the Under Secretary of Mines for Queensland for 1903 gives the following approximate estimate of the production of gold in Australia, New Zealand, and Tasmania during the year 1903 (from returns furnished by the deputy master of the royal mint, Melbourne):

	Ounces.
New South Wales	254,260
New Zealand	461,648
Queensland	668,546
South Australia	22,269
Tasmania	59,891
Victoria	767,297
Western Australia	2,064,801
Total	4,298,712

SILVER.

Owing to the fact that a large proportion of the silver produced by Australia is exported in the form of silver-lead, it has always been exceedingly difficult to estimate the amount of the product.

The estimates for the various colonies are summarized in the following table:

Colony.	Quantity.	Value.
	<i>Fine ounces.</i>	
Western Australia.....	172,611	\$93,210
Tasmania.....	1,855,168	1,001,790
Queensland.....	642,125	346,748
New South Wales.....	6,088,814	3,287,960
South Australia.....	12,224	6,600
New Zealand.....	911,914	492,434
Total.....	9,682,856	5,228,742

The Australasian silver product of 1903, compared with that of 1902, showed a gain of 1,656,909 fine ounces, or \$974,990, part of which was due to the higher price which prevailed in 1903.

WESTERN AUSTRALIA.

According to the supplement to the Government Gazette of Western Australia of February 19, 1904, that State in 1903 yielded 2,436,311 crude ounces, or 2,064,801 fine ounces of gold, valued at £8,770,719, or \$42,682,704 in United States money. This was the greatest output in the history of the colony, the increase over the yield of 1902 being 193,764 fine ounces, or 10.3 per cent. Of Western Australia's product 983,687 ounces were exported and 1,452,624 ounces were deposited at the mint at Perth.

Following is a statement of the gold production of Western Australia from 1886 to 1903, inclusive:

Year.	Fine contents.	Value.			
	<i>Ounces.</i>	£	s.	d.	
1886.....	270.17	1,147	12	0	
1887.....	4,359.37	18,517	8	0	
1888.....	3,124.82	13,273	8	0	
1889.....	13,859.52	58,871	10	0	
1890.....	20,402.42	86,663	19	7	
1891.....	27,116.14	115,182	1	4	
1892.....	53,271.65	226,283	11	7	
1893.....	99,202.50	421,385	9	2	
1894.....	185,298.73	787,098	19	6	
1895.....	207,110.20	879,748	4	5	
1896.....	251,618.69	1,068,808	5	1	
1897.....	603,846.44	2,564,976	12	7	
1898.....	939,489.49	3,990,697	13	7	
1899.....	1,470,604.66	6,246,731	10	9	
1900.....	1,414,310.86	6,007,610	13	8	
1901.....	1,703,416.52	7,235,653	9	3	
1902.....	1,871,037.35	7,947,661	10	11	
1903.....	2,064,801.00	8,770,719	0	0	
Total.....	10,933,140.53	46,441,030	10	5	

Western Australia in 1903 produced £19,153, or \$93,210, worth of silver, equivalent to 172,611 fine ounces.

QUEENSLAND.

In 1903, Queensland's gold production, according to the statement of Mr. Fraser, government statistician of Western Australia, amounted to 668,548 fine ounces, which in United States money would be worth

\$13,820,114. The yield, therefore, exceeded that of 1902 by 28,085 fine ounces, or \$580,569. The silver yield is placed at 642,125 fine ounces, which would be worth, at 54 cents per ounce, commercially \$346,748, exceeding the statistician's valuation of the yield, which was £65,538, by \$27,808, doubtless due to a difference in price. The yield was, approximately, 2,000 ounces less than that of 1902.

The Annual Report of the Under Secretary of Mines for Queensland covering the year 1903 confirms the above figure for the gold yield, and adds that it exceeded that of the previous year by £119,174, thus being, with one doubtful exception, the largest in the history of the State. The figures for silver are also confirmed by the same report.

PRODUCTION OF SILVER AND LEAD IN QUEENSLAND.

[From Annual Report of the Under Secretary for Mines, Brisbane, 1904.]

Queensland has, so far, not been a large producer of silver or lead, and the greater part of last year's yield was derived from the New Chillagoe and Mungana groups, and from a rich mine in the Herberton district, known as the Chillagoe Consols lease, situated within a mile of the Chillagoe smelters, and owned by the Chillagoe Mining and Investment Company, Limited. The company, failing to work the mine advantageously, sublet it to an energetic resident of the district, who, during the past fourteen months, has delivered to the smelters 8,500 tons of ore, averaging 35 per cent of lead and 26 ounces of silver per ton, thus transforming an apparently unpromising venture into a source of much profit to himself and to the company who own the mine. Mount Garnet, during the period of its activity in the earlier part of the year, contributed silver valued at a little more than £7,000.

The Sunbeam Mine at Ukalunda, in the Bowen district, furnished silver and lead worth £2,389. The value of the silver from their Mount Perry mines is returned by the Queensland Copper Company as £7,391; and the Silver Spur Mine at Texas, the most consistently successful of all our silver mines, has turned out silver and lead valued at £9,241. Mr. Ball, who visited the mine toward the close of the year, says that the ore body at the 300-foot level seems to be increasing in size and richness, and the company expect to have a new furnace in operation at an early date.

VICTORIA.

According to a report received from Mr. John P. Bray, United States consul-general at Melbourne, Victoria in 1903 produced 767,351 fine ounces of gold, valued at £3,259,483, or \$15,862,274 in United States money. Between the consul's figure and that of the Government statistician there is a slight discrepancy, but as that of the latter is probably a final figure, it is accepted by this Bureau; Victoria's gold product of 1903 is, therefore, placed at 768,006 fine ounces, of the value of \$15,876,093. The yield, therefore, was 47,153 fine ounces in excess of that of the previous year.

Victoria produces no silver.

NEW SOUTH WALES.

According to Mr. Fraser, New South Wales in 1903 produced 254,260 fine ounces of gold, of the value of \$5,256,021, which was an increase over the yield of 1902 of \$1,922,584, or 93,005 fine ounces. These figures agree with those of the Annual Report of the Department of Mines.

According to the Government statistician of Western Australia, New South Wales in 1903 produced 1,099,373 fine ounces of silver, worth \$593,661, and silver-lead and silver-lead ore to the value of £1,387,648, or \$6,752,988.

The above products are estimated by the Annual Report of the Department of Mines of New South Wales for 1903 at £1,501,403, or \$7,306,578, from which the value of the lead must be deducted.

The Broken Hill Proprietary Company is the largest silver producer in New South Wales; its output of silver and silver-lead for the fiscal year ending November 30, 1903, was valued at \$5,778,207. Taking the silver at 54 cents per ounce and the lead at \$50 per ton, the average prices derived from the appended table, it thus appears that New South Wales produced no less than four-fifths of all the silver and silver-lead yielded by the colony. Of the \$5,778,207 produced by this company in silver and silver-lead, the former amounted to \$2,636,357 and the latter to \$3,141,850; consequently, the silver represented about nine-twentieths of the total value. Assuming that this proportion held good for the entire product of the colony, the silver yield is placed at \$3,287,960, equivalent to 6,088,814 fine ounces, which is 88,814 fine ounces in excess of the estimate for 1902.

BROKEN HILL PROPRIETARY.

[From the Statist, London, September 19, 1903, and the report of the company, November 30, 1903.]

Date.	Ore treated.	Metal produced.		Price of silver per ounce.		Price of lead per ton.	
		Lead.	Fine silver.				
Half year ended—	<i>Tons.</i>	<i>Tons.</i>	<i>Ounces.</i>	<i>s.</i>	<i>d.</i>	<i>£</i>	<i>s. d.</i>
November 30, 1899.....	206, 193	18, 240	2, 502, 463	2	5½	17	2 6
May 31, 1900.....	232, 487	16, 007	2, 175, 422	2	5½	16	17 6
November 30, 1900.....	293, 451	21, 855	2, 780, 937	2	6½	16	16 3
May 31, 1901.....	296, 389	27, 869	3, 009, 164	2	5¾	12	5 0
November 30, 1901.....	305, 628	30, 457	2, 683, 946	2	3½	11	0 0
May 31, 1902.....	308, 878	32, 289	2, 554, 169	2	1½	11	5 0
November 30, 1902.....	334, 709	33, 522	2, 798, 020	1	11¾	10	12 6
May 31, 1903.....	289, 263	32, 029	2, 419, 367	2	2¾	10	11 2
November 30, 1903.....	233, 282	30, 808	2, 462, 776	2	3¾	9	19 10

THE BROKEN HILL MINING INDUSTRY IN 1903.

[From The Engineering and Mining Journal, New York, August 11, 1904.]

In the Broken Hill district in New South Wales, there were twelve mines in operation during the year 1903, which raised 1,078,442 long tons of sulphide ore.

* * * * *

From 1,100,514 tons of ore raised there were obtained the following profitable products:

Galena concentrates 203,416 tons, containing 5,438,498 ounces silver; 2,135 ounces gold, 117,078 tons lead, and 17,063 tons zinc. Average grade equals 26.7 ounces Ag. per ton, 57.5 per cent Pb., 8.4 per cent Zn.

Oxidized ore 22,072 tons, containing 895,681 ounces silver and 4,065 tons lead.

Slimes, 61,498 tons, containing 1,103,350 ounces silver, 11,654 tons lead, and 10,035 tons zinc.

Zinc concentrates 21,634 tons, containing 295,416 ounces silver, 2,606 tons lead, and 8,385 tons zinc. Average equals 13.7 ounces Ag. per ton, 12 per cent Pb., and 38.8 per cent Zn.

The total amount of the profitable products was 308,681 tons, while 826,497 tons of slimes, middlings, and tailings, containing 5,029,466 ounces silver, 52,075 tons lead, and 148,516 tons zinc were either dumped on the surface with a view to possible future treatment, or were returned to the mine as filling.

The 1,100,514 tons of ore raised comprised 22,072 tons of oxidized and 1,078,442 tons of sulphide. The latter contained 11,867,157 ounces silver, 183,416 tons of lead, and 184,011 tons of zinc. The average grade of the sulphide ore was, therefore, about 11 ounces silver, 17 per cent lead, and 17 per cent zinc.

SOUTH AUSTRALIA.

It appears from official sources that South Australia in 1903 produced 20,285 fine ounces of gold, of the value of \$419,328. The output was, therefore, 2,110 fine ounces less than the yield attributed to the colony the preceding year.

The silver product of South Australia for the year under discussion is estimated by this Bureau at 12,224 fine ounces, of the commercial value of \$6,600.

TASMANIA.

Mr. A. G. Webster, United States consul at Hobart, in response to this Bureau's interrogatories, states that Tasmania in 1903 produced 1,862 kilograms of gold, of the value of \$1,238,051, equivalent to 59,891 fine ounces, which agrees within 1 ounce of the figure given by the Government statistician of Western Australia. This valuation represents 1,893 kilograms; the figure given above—1,862—is, therefore, inexact.

The United States consul states that 43,100 tons of silver-lead ore, of the value of \$936,762, was raised. Mr. Fraser places the value of the silver produced at £193,247, equivalent to \$940,437, giving the quantity as 1,855,168 fine ounces. This figure is held to represent the yield for 1903, and its value, at 54 cents per ounce, would be \$1,001,790. There was, consequently, a very marked increase over the product of 1902, which was valued at \$400,000.

NEW ZEALAND.

Mr. Frank Dillingham, United States consul-general at Auckland, states, in reply to this Bureau's interrogatories, that New Zealand in 1903 produced 508,045 ounces of gold, valued at £1,951,433. This valuation, equivalent to \$9,496,649 in United States money, would represent 459,400 fine ounces; the gold as reported, therefore, was only 0.904+ fine.

Between the above figures and those given by Mr. Fraser, there is a discrepancy of 19,436 fine ounces, and as the Government statistician's figures are doubtless the final corrected estimate, they are accepted by this Bureau. New Zealand's gold product for 1903 is accordingly placed at 479,746 fine ounces, of the value of \$9,917,230.

The United States consul reports the colony's silver yield for 1903 as 674,196 ounces, valued at £71,975, or \$350,266 in United States money, which would represent, at 54 cents per ounce, 648,641 fine ounces. The figures given by the Government statistician of Western Australia are, however, 911,914 fine ounces, of the value of £91,497, or \$445,270. The value of the amount given—911,914 fine ounces—at the average price for 1903 (54 cents) per ounce, would be \$492,433; there is, therefore, a discrepancy in the values, probably due to a difference in calculating the average price for the year. The amount named by the Government statistician is, however, believed to be correct; consequently, New Zealand's silver product for 1903 is placed at 911,914 fine ounces, of the commercial value, at 54 cents per ounce, of \$492,434. There was, therefore, a gain, when compared with the product of 1902, of 382,624 fine ounces.

METALLICS.

[From the Engineering and Mining Journal, New York, September 1, 1904.]

The total production of gold in Australia, from the first discovery in 1851 to the end of 1903, is estimated by the secretary of mines of Victoria at 128,851,396 ounces crude, valued at £494,378,331. Of the different colonies contributing to the output, Victoria leads, with a total of 66,736,336 ounces, valued at £266,810,711; New Zealand is second, with a total of 16,105,821 ounces, valued at £63,149,147, and Queensland third with 17,454,418 ounces, valued at £58,312,127. Western Australia, which in 1903 produced more than 40 per cent of the output credited to Australia, stands fifth, with 12,410,773 ounces, valued at £46,441,031, being surpassed by New South Wales, with 13,932,667 ounces, valued at £51,426,814. Tasmania has produced 1,265,837 ounces, valued at £4,905,706, and South Australia, 676,763 ounces, valued at £2,324,658. The remainder of the production, amounting to 268,781 ounces, valued at £1,008,137, was obtained by smelting companies in New South Wales from imported ores.

THE GOLD PRODUCTION OF AUSTRALASIA FOR 1903.

[From the Australasian Insurance and Banking Record, January 21, 1904.]

The gold production of Australasia for 1903 greatly exceeded that for 1902, the total, inclusive of gold obtained by the smelting companies in New South Wales from ores imported from other States being 4,448,743 fine ounces (the figures being subject to revision), against 4,047,782 fine ounces, an increase of 400,961 fine ounces being shown. The Commonwealth and New Zealand production, weight, and value are stated separately as follows:

Year.	Commonwealth of Australia.		New Zealand.	
	Weight.	Value.	Weight.	Value.
1903	<i>Fine ounces.</i> 3,969,254	£16,869,300	<i>Fine ounces.</i> 479,489	£2,037,700
1902	3,588,376	15,250,500	459,406	1,952,400

The increase in value for the Commonwealth is £1,618,800, and for New Zealand it is £85,300, the total increase being £1,704,100. This is a very satisfactory condition of affairs. Details of the production are as follows:

Source.	1902.	1903.
	<i>Fine ounces.</i>	<i>Fine ounces.</i>
Victoria.....	727,362	764,822
New South Wales.....	161,255	254,260
New South Wales (smelted from imported ores).....	93,180	144,156
Queensland.....	640,463	659,042
South Australia.....	24,082	22,270
Western Australia.....	1,871,038	2,064,704
Tasmania.....	70,996	60,000
Total Commonwealth.....	3,588,376	3,969,254
Total New Zealand.....	459,406	479,489
Total.....	4,047,782	4,448,743

The mint operations do not show the same increase in the aggregate as the production, but the issues during 1903 were very large. They compare with those for the two previous years as follows:

Mints.	1901.	1902.	1903.
Melbourne:			
Coin.....	£3, 987, 701	£4, 267, 157	£3, 521, 780
Bullion.....	87, 533	195, 410	792, 594
Sydney:			
Coin.....	3, 012, 000	2, 855, 000	2, 921, 500
Bullion.....	18, 844	2, 553	159, 626
Perth:			
Coin.....	2, 889, 333	4, 289, 122	4, 674, 783
Bullion.....	21, 225	385, 987	489, 553
Total	10, 016, 636	11, 995, 229	12, 559, 836

The Perth branch has become the most active of the three Australian branches of the royal mint.

The extra colonial shipments of gold coin and bullion from Melbourne, Sydney, Adelaide, and Western Australia for 1903 compare with those for 1902 as follows:

Destination.	1902.	1903.
Melbourne.....	£3, 444, 104	£4, 631, 931
Sydney	2, 914, 134	4, 444, 212
Adelaide.....		103, 750
Western Australia	6, 391, 685	7, 421, 784
Total.....	12, 749, 923	16, 601, 677

The shipments to India during 1903, included in the above, consisted of £7,526,000 in specie and £1,307,465 in bullion, or a total of £8,833,465, against £3,124,978 in 1902. Shipments to Hongkong amounted to £294,868 in 1903, against £331,088 in 1902; to San Francisco, £1,500,000, against £1,601,014; and to South Africa, £1,600,000, against £3,150,000 in 1902.

The extra colonial shipments for 1903 amounted to £4,631,931, or an increase of £1,187,827 as compared with the previous year; and the intercolonial shipments, including those to New Zealand, amounted to £937,500, or a decrease of £94,500. The shipments of gold coin and bullion from Melbourne to India during the last six years have been as follows:

Year.	Coin.	Bullion.	Total.
1898.....	£207, 500	£280, 755	£488, 295
1899.....	2, 379, 000	192, 672	2, 571, 672
1900.....	1, 230, 000	111, 665	1, 341, 665
1901.....	600, 000	82, 421	682, 421
1902.....	1, 110, 000	184, 371	1, 294, 371
1903.....	2, 780, 000	714, 236	3, 494, 236

A summary of the extra colonial shipments from Melbourne, according to destinations, for the past three years is as follows:

Destination.	1901.	1902.	1903.
London.....	£160,344	£125,471	£150,588
Bremen.....			100,000
Marseille.....		530	
India.....	682,421	1,294,371	3,494,226
South Africa.....	2,150,000	1,900,000	800,000
Hongkong.....	70,002	73,732	87,107
Japan.....		50,000	
Total	3,062,767	3,444,104	4,631,931

AFRICA.

In 1898 Africa yielded over \$80,000,000 worth of gold, or about 28 per cent of the world's product; in 1900, owing to the war in the Transvaal, the yield dropped to a little more than \$8,600,000, a decrease of 89 per cent. On the cessation of hostilities the output began to increase rapidly, and in 1902 the production was about 50 per cent of what may be regarded as the continent's normal yield. In 1903 the total output amounted to 3,289,409 fine ounces, of the value of \$67,998,131.

The subjoined table shows whence the output has been derived since 1889:

Year.	Transvaal.		West Coast.		French Colonies. ^a		Rhodesia. ^b		Total.	
	Weight.	Value.	Weight.	Value.	Weight.	Value.	Weight.	Value.	Weight.	Value.
	<i>Kilos.</i>		<i>Kilos.</i>		<i>Kilos.</i>		<i>Kilos.</i>		<i>Kilos.</i>	
1889 ...	11,719	\$7,788,372	1,270	\$844,262	261	\$173,461	(c)		13,250	\$8,806,095
1890 ...	15,706	10,438,356	1,062	705,705	261	173,461	(c)		17,029	11,317,522
1891 ...	22,398	14,885,639	1,289	856,730	261	173,461	(c)		23,948	15,915,830
1892 ...	34,938	23,220,108	1,528	1,011,924	^d 261	173,461	(c)		36,722	24,405,413
1893 ...	42,573	28,293,831	977	649,695	261	173,461	(c)		43,811	29,116,987
1894 ...	59,730	39,696,330	865	574,653	261	173,461	(c)		60,856	40,444,444
1895 ...	66,045	43,893,300	995	661,630	261	173,461	(c)		67,301	44,728,391
1896 ...	65,874	43,779,669	945	627,938	261	173,461	(c)		67,080	44,581,068
1897 ...	86,720	57,633,861	751	499,311	640	425,510	(c)		88,111	58,558,682
1898 ...	119,190	79,213,953	518	343,928	189	125,987	669	\$444,617	120,566	80,128,485
1899 ...	107,410	71,384,561	422	280,185	344	228,512	1,700	1,129,773	109,876	73,023,031
1900 ...	9,215	6,124,226	326	216,873	1,115	741,029	2,392	1,589,815	13,048	8,671,943
1901 ...	8,026	5,333,994	216	143,813	958	636,700	4,476	2,974,943	13,676	9,089,450
1902 ...	52,514	34,901,140	109	6,552	1,127	748,976	5,065	3,366,561	58,716	39,023,725
1903 ...	92,468	61,454,439	2,028	1,347,845	1,701	1,130,358	6,117	4,065,489	102,314	67,998,131

^a Includes Madagascar, Algeria, and the French Sudan. For 1903, Madagascar only.

^b Includes Mozambique, Cape Colony, and Natal for all years except 1901, which does not include product of Mozambique or Natal. For 1903, includes Rhodesia, Cape Colony, and Natal.

^c Previous to 1898 Rhodesia and Mozambique together produced 289 kilograms, fine, included in the Transvaal returns.

^d Previous to 1897 the only figures obtainable were those for 1892—Madagascar only.

In 1903 Africa produced 343,214 fine ounces of silver, of the commercial value, at 54 cents per ounce, of \$185,336.

THE TRANSVAAL.

From the half-yearly report of the Transvaal mines department for the six months ending December 31, 1903, it is learned that the Transvaal produced gold to the value of £5,587,510 during the first six months of the year and £7,040,547 in the concluding six months, a

total of £12,628,057, or \$61,454,439 in United States money, equivalent to 2,972,858 fine ounces, a gain, when compared with the product of 1902, of 1,284,515 fine ounces, or \$26,553,299.

The Witwatersrand mines yielded 2,787,164 fine ounces.

Appended is a table showing the gold production of the Transvaal since 1884:

Year.	Production.	Year.	Production.
	<i>Fine ounces.</i>		<i>Fine ounces.</i>
1884.....	2,376	1894.....	1,805,000
1885.....	1,414	1895.....	2,017,443
1886.....	8,171	1896.....	2,025,510
1887.....	39,880	1897.....	2,743,518
1888.....	227,749	1898.....	3,823,367
1889.....	350,909	1899.....	3,637,713
1890.....	440,152	1900.....	348,761
1891.....	688,439	1901.....	258,032
1892.....	1,069,058	1902.....	1,688,343
1893.....	1,290,218	1903.....	2,972,858

The silver yield for the year 1903 was valued at £36,745, or \$178,820, equivalent, at 54 cents per ounce, to 327,443 fine ounces.

RHODESIA.

According to the monthly reports of the chamber of mines of Rhodesia, that country, comprising Matabeleland and Mashonaland, produced, during the calendar year 1903, crude gold to the amount of 231,872 ounces 4.96 pennyweight. This Bureau has returns of the values of the yield for eleven months, from which it appears that the average fineness of the product in 1903 was 0.846, an improvement over that of 1902, when it was 0.8375. Assuming that the fineness remained the same for the twelve months, the value of the output was £835,357, or in United States money \$4,065,265, equivalent to 196,657 fine ounces.

Compared with the yield of 1902 there was a gain of 34,040 fine ounces, or \$703,673.

Following is a statement of the product of Rhodesia from 1898:

Year.	Weight.		Value.
	Crude ounces.	Fine ounces.	
1898 (prior to Sept. 1).....	6,470	5,409	\$104,202
1898 (Sept. 1 to Dec. 1)	18,085	15,119	312,537
1899.....	65,303	54,589	1,128,444
1900.....	91,940	76,779	1,587,168
1901.....	172,060	143,842	2,973,478
1902.....	194,169	162,617	3,361,592
1903.....	231,872	196,657	4,065,265
Total.....		655,012	13,532,686

The silver yield in 1903 was 15,771 ounces, assumed to have been fine.

WEST COAST.

This Bureau is indebted to Mr. A. Sauerbeck, of London, for a statement of the amount of gold bullion imported into Great Britain from the West Coast of Africa, which, in 1903, was 71,190 ounces, against 22,425 ounces in 1902.

The Mining Journal, Railway and Commercial Gazette (London), of April 23, 1904, contains the appended statement of the gold production of the Gold Coast colony in the last three years:

Year.	Quantity.	Value.
	<i>Ounces.</i>	
1901	6,163	£22,187
1902	26,911	96,880
1903	70,763	254,911

It is evident that these are crude ounces; the fine ounces corresponding to the values given are, for the various years, respectively, 5,222; 22,807, and 60,006. The fineness, therefore, was 0.847+.

The Annual Statement of the Trade of the United Kingdom for 1903 states that 71,129 ounces of gold were imported from British West Africa in that year. On the assumption that these were British standard ounces, the fine contents would be 65,202 ounces, which is adopted by this Bureau as the production of the gold coast for 1903, the value would be \$1,347,845.

MADAGASCAR.

In reply to this Bureau's interrogatories, Mr. Horace Porter, United States ambassador to France, states that Madagascar, in 1902, produced 1,535 kilograms of gold, valued at 4,123,600 francs, equivalent to \$795,855, which would represent 38,499 fine ounces, or 1,197.4 kilograms. The gold was, accordingly, 0.780 fine.

The Board of Trade Journal (London) of August 4, 1904, confirms these figures for 1902 and places the amount for 1903 at 5,856,778 francs, deriving its information from official sources. This amount is equivalent, in United States money, to \$1,130,358, which would represent 54,681 fine ounces, which is, accordingly, adopted as the product for that year—a gain of 16,182 fine ounces when compared with the yield of 1902.

CAPE COLONY.

Answering this Bureau's interrogatories, Mr. William R. Brigham, United States consul-general at Cape Town, states that Cape Colony, in 1903, produced 376,611 grams of gold, valued at £46, or \$224, equivalent to 11 fine ounces. No silver is produced in the colony.

The Orange River colony produced neither gold nor silver in 1903.

COST OF WITWATERSRAND GOLD.

[From The Engineering and Mining Journal, New York, June 30, 1904.]

The cost of winning gold is discussed by the Statist, in a recent issue, with particular regard to the big mines of the Transvaal. Our contemporary says: "Sir Percy Fitzpatrick, in one of his important and most instructive speeches, laid great stress on the fact that it was ultimately the cost of winning a sovereign's worth of gold that dominated the mining positing on the Rand. Some figures have recently been taken out for last year elaborating this point. Out of twenty-five mines, the figures for which were calculated, the Robinson shows the best result, each sovereign's worth of gold won having cost 7.85 shillings; the Bonanza next with 8.11 shillings. On the other hand, it cost the Lancaster, working under particularly adverse conditions, no less than 17.83 shillings, and the French Rand exactly 17 shillings. In

view of the satisfactory grade of 42 shillings per ton, the showing of the South Randfontein is very disappointing, figuring as it did at no less than 15.28 shillings per ton, or about the same as the Glencairn, which only recovered 27.56 shillings per ton of ore crushed." The explanation of this anomaly is, of course, the high range of cost at the South Randfontein and the economical working at the Glencairn.

At certain of the deep levels of the Rand Mines group the cost of winning a sovereign's worth of gold was as follows: Crown deep, 11.79 shillings; Durban Roodepoort Deep, 13.43 shillings; Ferreira Deep, 10.26 shillings; Geldenhuis Deep, 11.32 shillings; Glen Deep, 13.70 shillings; Langlaate Deep, 16.13 shillings; Nourse Deep, 15.17 shillings; Rose Deep, 12.01 shillings.

These figures combine the factors of grade and cost and show in conclusive fashion that the Rand industry is necessarily worked between very narrow limitations as to working expenditures. At only two out of the twenty-five companies included are the costs less than 10 shillings for every sovereign's worth of gold won. At such well-known and profitable mines as the Driefontein, Primrose, and May Consolidated there are only 8 or 9 shillings profit on every pound's worth of gold produced, certainly not a very big thing for a mining venture. This cost of winning a sovereign's worth of gold, needless to say, has little or no connection with mining prospects, from an investor's standpoint, as that is at once complicated by other factors, chief of which are capitalization and scale of operation.

GOLD MINING IN SOUTHERN RHODESIA.

[Written by THOMAS WARTH. From the Mining and Scientific Press, San Francisco, Cal., February 13, 1904.]

Rhodesia is comparatively a new and little-known country. It will be years ere its geological formations can be located and its divisions definitely correlated. The high plateau, forming the watershed of the river systems and embracing the main area of the country, consists of granites and gneisses. A portion of it is overlaid by sandstones. It is worth noting that the country in the neighborhood of these schists is always more fertile and better wooded than that of the basement granite. This fact is a help to the gold miners, as it is in the schists that the auriferous veins usually occur. Considering the limit of the zone of their occurrence, it is possible some may be sedimentary and some igneous. These intrusive dikes in many cases appear to have been forced up before the matrix of the auriferous lodes was formed, as they have more often taken the place of the quartz than faulted it. The lodes usually follow conformably the foliations of the country, both horizontally and vertically, appearing at times to have pinched right out and a few feet further on opening out wider than before. This makes not only the opening difficult, but the future of many mines speculative. It is generally admitted that the majority of the veins are fissures, although some, especially where the foot wall or hanging wall is granite, have been found too narrow at depth, and finally pinched out altogether.

The country is sometimes contorted. In one instance a shaft was put down vertically with the intention of cutting a reef dipping west at 120 feet. The lode was cut through at 80 feet, and then went down vertically, forming the hanging wall of the shaft. At 100 feet a drive was started south, following the strike of the reef which, after a series of corrugations, headed almost due east for a few feet and was then blocked out by country. Trenching on the surface, however, revealed what was presumably a continuation of the same reef some 600 feet back and striking in a normal direction. The inclosing country was extremely altered and was at times basaltic in appearance.

The colors are due to the presence of different sulphides, as of iron and copper; carbonates such as azurite and malachite, which are widely distributed, oxides, etc. A great majority of the outcrops have the distinctive red-brown tinge, due to oxidation of iron pyrites. Last year a Bulawayo company, prospecting a reef for gold, struck a deposit of native copper within 60 feet of the surface, occurring in aborescent sheets between the jointing of the quartz. The Ayrshire mine in Mashonaland is an instance of gold occurring in diorite. The mine area embraces a huge intrusive dike in the granite with its longest diameter bearing east and west. The gold was first found in the diorite immediately next to a feldspathic vein which appears to traverse the mass, but afterwards found disseminated throughout the entire dike. Just as the reefs differ in occurrence, nature, and grade, so do they in width. Of quartz reefs, one in the Tai district, the Monarch, at one place is said to be 80 feet wide. The richness of the ore often varies in inverse ratio to the width of the vein, a reef showing a wide outcrop and giving a low assay value at surface, on proving at depth the vein stuff is less in quantity but of higher grade. As the reverse of this is

also often true, it is seen that, from a speculative point of view, mining in Rhodesia is in direct contrast to the blanket mining of the Transvaal, where the gold is so evenly distributed that the value of the gold contents of a mine area may often be approximately determined before a shaft has been put down. Many outcrops show visible gold, especially when by the oxidation or dissolution of the mineral constituents the stone has become honeycombed; on washing it fine grains of gold are generally discernible. On crushing, this class of ore is often found to be deceptive, the whole of the gold contents being visible and the stone containing none of the metal in combination. At the same time, Rhodesia has furnished hundreds of rich specimens of nugget gold. It was this class of outcrop which attracted the ancients.

The crystalline rocks and schistose bands containing the auriferous veins of the high plateau forming the backbone of southern Rhodesia may be regarded as a coast, bounded on its northern, western, and southern shores by sedimentary strata. On the south these are shallow and of small area, appearing to fill the hollows in and lying unconformably on the metamorphic rocks, but on the west and north they are of greater extent.

Some 250 miles northwest of Bulawayo, and between the Gwaai River on the east and the Kalahari Desert on the west, are the Wankie coal fields. To the east, between the Gwaai and Sangli rivers, are the carboniferous areas of Luba, Sengwe, and Sesani. Here seams of workable coal in shales and sandstones, with occasional ironstone bands, have been found and are to-day being developed with all possible speed. The coal measures appear to lie unconformably on metamorphic rocks and extend northward beyond the Zambesi River, having a gentle dip south to southwest. These coal fields lie close to the Victoria Falls. There is no native timber, above a few inches in diameter, within 80 miles of Wankie, but the railway will reach the field this year.

The first essential for the successful development of Rhodesia is a return of confidence by the investing public. The country is still undeveloped and gives indications of rich deposits of minerals. Other requirements are a plentiful supply of unskilled labor, reasonable and reliable transport, and cheap fuel.

The tendency has been for wages to increase, and 35 shillings to £2 per month may be taken as an average figure for good drill boys. Surface boys get from 5 to 15 shillings a month less than drill boys, but boss, or special boys, are paid up to £2 10s. per month. A good white miner or mechanic gets 20 shillings or more per day.

The principal Rhodesian woods used for mining are the mapaani, knobbesdorn, and native mahogany. Of these, knobbesdorn is the toughest and most lasting. For stations and lining the bins at the different leads Oregon pine may be used. Cordwood for firing should not be under 3 inches in diameter, may be had from 15 to 20 shillings a cord. A cord of mapaani is roughly equal to from 10 to 15 hundredweight of coal for generating steam.

Up to the present, owing to the heavy railway rates on coal, which has to be carried about 1,000 miles, as from the Transvaal or Natal, it has been customary to burn wood for charcoal for the blacksmith's forge and assayer's furnaces. All timber, native or imported, which is in contact with the ground, excepting timber in the mine, should be creosoted or well tarred, as a safeguard against the ravages of white ants.

In many districts in Rhodesia there is running water all the year round, in others the construction of large dams will be a necessity, for though the rainfall is sufficient to supply water for all purposes, it only occurs during the wet season. As a dam of any extent takes some time to build, this is one of the first problems the mining engineer should solve, that the building of the dam may run concurrently with the development. The management of the Eagle Vulture mine, in the Gwanda district, are building a dam with a capacity of 40,000,000 gallons.

The experiment of a dry crushing plant has been tried at the Wanderer mine in the Selukwe district, and is successful; and their plant, which will treat 12,000 tons a month, shows a good profit on a 4½-pennyweight ore. This will probably be the forerunner of many similar plants in the country where the lack of water has been the chief drawback to profitable exploitation.

The following rates have recently been given out as specimens of present-day rates on Rhodesian railways: Natives, 0.166 pence per mile; hay, 0.25 pence per ton mile; farm produce, 0.5 pence per ton mile; concentrates, 0.75 pence per ton mile. The Wankie coal, which is already being used on the section of railway between Salisbury and Machurdi, is proposed to be carried at a uniform rate of 1.5 pence per ton mile north of Bulawayo, and a through rate of 0.5 pence per ton mile south of that town. Its estimated cost is about 30 shillings per ton delivered to the mining districts.

GOLD MINING IN EGYPT.

FACTS IN REGARD TO ANCIENT MINES WHICH HAVE BEEN REDISCOVERED AND ARE AGAIN BEING WORKED.

[By CHARLES F. ALFORD,^a From *Mines and Minerals*, July, 1904.]

The history of gold mining in ancient Egypt is lost in antiquity. There were vague rumors of ruins of mining towns having been seen by travelers, but nothing definite was known until 1900, when an expedition was fitted out by the Victoria Investment Corporation of London, under Mr. Charles Alford, to search for and report on these ancient mines. Professor Sayce had written that the eastern desert, between the Nile and the Red Sea, supplied ancient Egypt, not only with stone, but with vast quantities of gold.

Immense quantities of gold have been taken from it in the past, and there is every reason to believe that equally large quantities are still to be found there. The old mines were abandoned, not because exhausted or from lack of water, but from the country being overrun by Bedouins. Mining was done by slave labor. The quartz was broken by fire and then crushed, the strongest men breaking the rock out with iron hammers, while the old men and children carried the ore out to the crusher. The ore was washed on sloping tables, the quartz being all washed away and the gold remaining behind. The gold was melted in earthen pots, together with lead, salt, and a little tin and clay, and after five days' continuous burning the gold ran together, its quantity being a little decreased.

To the east of Assuan, bordering the Red Sea, is a chain of mountains 50 miles wide, with peaks 8,000 feet above the sea. It is in this range that the gold mines lie. The country is intersected by "wadys" or broad dry watercourses between the canyons of rock.

The crystalline rocks are a hornblende granite, with pink orthoclase, giving the mountains a very red appearance from a distance. Surrounding this core is a gray granite passing into gneiss and mica schist traversed by dikes of greenstone, felsite-porphry, and elvan granite. It is in these rocks that the gold quartz veins occur associated with the eruptive dikes. Overlying the crystalline rocks is the Nubian sandstone, consisting of brown and gray quartzose rock sometimes charged with iron and manganese. The strata are nearly horizontal; locally overlying portions of the sandstone is a conglomerate, worked by the Romans as an ornamental stone. Above the Nubian sandstone are Cretaceous beds containing deposits of coal or carbonaceous matter with impressions of leaves, and above these, Cretaceous limestones, containing fossil mollusks and fish remains and phosphates. Water is scarce, but a supply can usually be obtained by digging wells. There is a great lack of timber and fuel; coal, however, could be supplied from the coast. The natives are wandering, Bedouin Arabs, and the Fellaheen or working men of the Nile are an industrious class. The climate is one of the finest in the world in winter, but the summer months are very hot. Animal life and game are scarce, the ibex being the only game.

The camel is the principal means of transportation, carrying a load of 400 pounds at the rate of 20 miles per day for eight or nine consecutive days. It requires water every five days, and for food it has a handful of hard beans once or twice a day; about six camels are necessary for each traveler.

The ancient mining towns are irregular groupings of small huts—circular, square, or oblong—built of rough unhewn stones; the towns are inclosed by a wall capable of containing 1,000 men.

The ancient mine workings were upon the outcrops of the veins and followed the ore shoots downward in an irregular manner. No attempt was made to get at the veins by a crosscut tunnel. The workings were found choked with sand, so no remains of ancient tools were discovered, with the exception of the old quartz mills and rubbing stones. Of these there were two classes, one an elliptical rubbing stone, on which the quartz was reduced to a coarse powder by attrition with a stone rolling pin, and another in the form of a mill with an upper and lower grinding stone. During the past twelve months the work of exploration has been pushed on energetically by the Egyptian Mines Exploration Company in the district above described, while the Egyptian Development Syndicate has commenced work in the peninsula of Sinai; but the latter appears at present to be searching for turquoise rather than gold.

^a Abstract by Prof. Arthur Lakes, from *Transactions of the Institution of Mining and Metallurgy*, London. Eleventh session, 1901-2.

The Exploration Company explored a mine 4 miles from the Red Sea. Over an area of 3 square miles occur a large number of quartz veins, outcropping in gray granite, intersected by dikes of greenstone porphyry and felsite. Some of these veins had in ancient times been worked to very considerable depths. The ancients appeared to understand the nature of ore shoots, and in one case worked one out for 700 feet. A shaft has been put down 130 feet without reaching the bottom of the old workings. The plan is to run crosscut tunnels in below the old workings. The veins are from 1 to 3 feet wide, containing a constant though variable yield of free-milling gold. The quartz is white to gray, carrying a little pyrite, and follows along the sides of porphyry dikes. Fine white Carrara marble exists, which was used by the ancient Egyptians for their palaces and monuments. Very fine emeralds occur, associated with beryl in a mica-schist country below the Nubian sandstone. Turquoise is mined in the peninsula of Sinai lining cavities in the Nubian sandstone. Large deposits of phosphate also occur. The crystalline rocks in which the ancient gold mines were worked commences about Jebel Zeit at the south end of the Gulf of Suez, and extends in varying width along the coast line of the Red Sea for 700 miles until it joins the mountains of Abyssinia. It is hoped that there may be established again, after these long ages, the mining industry of this most ancient and interesting country.

PART IV.

GENERAL STATISTICS.

I.—DEPOSITS AND PURCHASES OF GOLD AND SILVER, BY WEIGHT,

Description of deposits.	COINAGE MINTS.			ASSAY OFFICES.	
	Philadel- phia.	San Fran- cisco.	New Orleans.	New York.	Denver.
GOLD.					
Domestic bullion:	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>
Unrefined.....	9,816.435	264,367.435	83.968	333,716.674	267,980.045
Refinery bars.....				337,256.262	459,485.401
Refined bars.....		1,207,469.761		1,305,986.917	
Total domestic bullion...	9,816.435	1,471,837.196	83.968	1,976,959.853	727,465.446
Domestic coin:					
Mutilated and abraded....	4,443.430	592.050	923.008	32,192.024	13.447
Treasury transfers.....	69,012.600	992.080	4,715.860		
Foreign bullion:					
Unrefined.....	5,078.816	14,823.935	27,903.886	284,494.786	164.970
Refined abroad.....				787,147.882	
Foreign coin.....	69.448	507,566.823	480.116	213,196.590	
Jewelers' bars, old plate, etc...	53,572.194	1,876.773	2,379.444	179,530.195	1,059.084
Total deposits.....	141,992.923	1,997,688.857	36,486.282	3,473,521.330	728,702.947
Redeposits:					
Fine bars.....	9,424.044			5,028.622	
Unparted bars.....	988,207.510	848,766.260		77.271	46.165
Total redeposits.....	997,631.554	848,766.260		5,105.893	46.165
Total gold operated upon.	1,139,624.477	2,846,455.117	36,486.282	3,478,627.223	728,749.112
SILVER.					
Domestic bullion:					
Unrefined.....	4,907.59	64,876.03	18.63	159,872.77	102,453.54
Refinery bars.....				110,793.65	2,263.94
Refined bars.....	5,578,294.25	^a 10,916,045.18		1,125,837.13	
Total domestic bullion...	5,583,201.84	10,980,921.21	18.63	1,396,503.55	104,717.48
Domestic coin:					
Mutilated and abraded....	2,152.52	30.30	686.86	178.20	
Treasury transfers.....	1,351,393.04	65,061.20	425,224.20		
Trade dollars.....	197.49		31.06		
Hawaiian coin Treasury trans- fers.....		650,822.08			
Philippine special assay coins..	91.49				
Foreign bullion:					
Unrefined.....	4,181.63	5,268.94	9,045.89	1,114,307.95	7.56
Refined abroad.....		123,920.40		16.59	
Foreign coin.....	430.32	^b 2,046,917.31	1,202.08	50,583.26	
Jewelers' bars, old plate, etc...	111,992.67	52,121.81	2,659.00	507,693.19	309.84
Total deposits.....	7,053,641.00	13,925,063.25	438,867.72	3,069,282.74	105,034.88
Redeposits:					
Fine bars.....	59,810.82	1,485.90		57,597.45	
Unparted bars.....	174,570.38	172,169.79		6.86	14.54
Mint bars.....	154,902.81				
Total redeposits.....	389,284.01	173,655.69		57,604.31	14.54
Total silver operated upon	7,442,925.01	14,098,718.94	438,867.72	3,126,887.05	105,049.42

^a This item contains 2,641,200.83 standard ounces of silver bullion received from sundry parties on account of transfer from Philadelphia Mint.

^b This item contains 1,494,621.24 standard ounces (1,715,674 Mexican dollars) deposited as unrefined foreign bullion received from the government of Philippine Islands and 87,203.54 standard ounces (100,000 Mexican dollars) received on account of transfer from Philadelphia Mint as fine bars.

During the Calendar Year ended December 31, 1903.

Assay Offices.							Total.
Carson.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.	
<i>Stand. ozs.</i> 13,597.480	<i>Stand. ozs.</i> 65,787.412	<i>Stand. ozs.</i> 125,627.365	<i>Stand. ozs.</i> 8,549.618 2,844.053	<i>Stand. ozs.</i> 1,895,831 2,504.999 4,411.136	<i>Stand. ozs.</i> 42,663.870	<i>Stand. ozs.</i> 238,009.339 598.900 11,733.198	<i>Stand. ozs.</i> 1,372,095.472 802,599.615 2,529,601.012
13,597.480	65,787.412	125,627.365	11,393.671	8,811.966	42,663.870	250,251.437	4,704,296.099
			7.186	31.870		16.110	38,219.125 74,720.540
		11,491.711				585,187.909	929,146.013
			2.585			1,462.965	788,610.847
7.858		111.709	181.598	1,336.011		89.597 331.539	721,405.159 240,386.405
13,605.338	65,787.412	137,230.785	11,585.040	10,179.847	42,663.870	837,339.557	7,496,784.188
							14,452.666
						526.786	1,837,623.992
						526.786	1,852,076.658
13,605.338	65,787.412	137,230.785	11,585.040	10,179.847	42,663.870	837,866.343	9,348,860.846
8,146.19	22,528.56	19,995.07	1,496.30 9.73	576.09 8.99	16,007.45	28,476.66	429,354.88 113,076.31 17,620,176.56
8,146.19	22,528.56	19,995.07	1,506.03	585.08	16,007.45	28,476.66	18,162,607.75
			3.41				3,051.29 1,841,678.44 228.55
							650,822.08 91.49
		8,449.77				136,720.34	1,277,982.08 123,936.99
6.24		30.43	1.78 96.68	264.77		.67 74.08	2,099,135.42 675,248.71
8,152.43	22,528.56	28,475.27	1,607.90	849.85	16,007.45	165,271.75	24,834,782.80
							118,894.17 347,202.15 154,902.81
						440.58	620,999.13
8,152.43	22,528.56	28,475.27	1,607.90	849.85	16,007.45	165,712.33	25,455,781.93

II.—DEPOSITS AND PURCHASES OF GOLD AND SILVER, BY VALUE,

Description of deposits.	COINAGE MINTS.			ASSAY OFFICES.	
	Philadel- phia.	San Fran- cisco.	New Orleans.	New York.	Denver.
GOLD.					
Domestic bullion:					
Unrefined.....	\$182,631.35	\$4,918,463.91	\$1,562.19	\$6,208,682.31	\$4,985,675.21
Refinery bars.....				6,274,535.13	8,548,565.57
Refined bars.....		22,464,553.69		24,297,431.03	
Total domestic bullion...	182,631.35	27,383,017.60	1,562.19	36,780,648.47	13,534,240.78
Domestic coin:					
Mutilated and abraded....	82,668.47	11,014.88	17,172.24	598,921.39	250.26
Treasury transfers.....	1,283,955.35	18,457.30	87,736.93		
Foreign bullion:					
Unrefined.....	94,489.60	275,794.14	519,142.06	5,292,926.25	3,069.21
Refined abroad.....				14,644,611.76	
Foreign coin.....	1,292.06	9,443,103.68	8,932.38	3,966,448.19	
Jewelers' bars, old plate, etc...	996,691.98	34,916.71	44,268.72	3,340,096.65	19,703.88
Total deposits.....	2,641,728.81	37,166,304.31	678,814.52	64,623,652.71	13,557,264.13
Redeposits:					
Fine bars.....	175,331.06			93,555.76	
Unparted bars.....	18,385,256.01	15,791,000.19		1,437.60	858.88
Total redeposits.....	18,560,587.07	15,791,000.19		94,993.36	858.88
Total gold operated upon	21,202,315.88	52,957,304.50	678,814.52	64,718,646.07	13,558,123.01
SILVER.					
Domestic bullion:					
Unrefined.....	5,710.65	75,492.11	21.68	186,033.77	119,218.66
Refinery bars.....				128,923.51	2,634.40
Refined bars.....	6,491,106.04	12,702,307.12		1,310,065.03	
Total domestic bullion...	6,496,816.69	12,777,799.23	21.68	1,625,022.31	121,853.06
Domestic coin:					
Mutilated and abraded....	2,504.76	35.26	799.26	207.36	
Treasury transfers.....	1,572,530.08	75,707.58	494,806.34		
Trade dollars.....	229.81		36.14		
Hawaiian coin, Treasury trans- fers.....		757,320.24			
Philippine special assay coins..	106.46				
Foreign bullion:					
Unrefined.....	4,865.89	6,131.13	10,526.12	1,296,649.25	8.80
Refined abroad.....		144,198.28		19.30	
Foreign coin.....	500.73	2,381,867.41	1,398.78	58,860.52	
Jewelers' bars, old plate, etc...	130,318.74	60,650.83	3,094.11	590,770.26	360.54
Total deposits.....	8,207,873.16	16,203,709.96	510,682.43	3,571,529.00	122,222.40
Redeposits:					
Fine bars.....	69,598.05	1,729.05		67,022.49	
Unparted bars.....	203,136.44	200,343.03		7.98	16.92
Mint bars.....	180,250.54				
Total redeposits.....	452,985.03	202,072.08		67,030.47	16.92
Total silver operated upon	8,660,858.19	16,405,782.04	510,682.43	3,638,559.47	122,239.32

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

ASSAY OFFICES.							Total.
Carson.	Boise.	Helena.	Charlotte.	St. Louis.	Dead-wood.	Seattle.	
\$252,976.37	\$1,223,949.00	\$2,337,252.56	\$159,061.93 52,912.59	\$35,271.27 46,604.63 82,067.64	\$793,745.62	\$1,428,080.70 9,467.91 218,292.05	\$25,527,352.42 11,932,085.83 47,062,314.41
252,976.37	1,223,949.00	2,337,252.56	211,974.52	163,943.54	793,745.62	4,655,840.66	87,521,782.66
			133.68	592.82		299.72	711,053.46
							1,390,149.58
		213,799.25				10,887,215.11	17,286,435.62
			48.10			27,217.95	14,671,829.71
						1,666.91	13,421,491.32
146.20		2,078.30	3,378.54	24,855.14		6,168.17	4,472,304.29
253,122.57	1,223,949.00	2,553,130.11	215,534.84	189,391.50	793,745.62	15,578,408.52	139,475,046.64
							268,886.82
						9,800.67	34,188,353.35
						9,800.67	34,457,240.17
253,122.57	1,223,949.00	2,553,130.11	215,534.84	189,391.50	793,745.62	15,588,209.19	173,932,286.81
9,479.20	26,215.05	23,266.99	1,741.15 11.32	670.35 10.46	18,626.85	33,136.47	499,612.93 131,579.69 20,503,478.19
9,479.20	26,215.05	23,266.99	1,752.47	680.81	18,626.85	33,136.47	21,134,670.81
			3.97				3,550.61
							2,143,044.00
							265.95
							757,320.24
							106.46
		9,832.46				159,092.76	1,487,106.41
			2.07				144,217.58
			112.50	308.09		.78	2,442,630.29
7.26		35.41				86.20	785,743.94
9,486.46	26,215.05	33,134.86	1,871.01	988.90	18,626.85	192,316.21	28,898,656.29
							138,349.59
						512.67	404,017.04
							180,250.54
						512.67	722,617.17
9,486.46	26,215.05	33,134.86	1,871.01	988.90	18,626.85	192,828.88	29,621,273.46

III.—DEPOSITS OF UNREFINED GOLD OF DOMESTIC PRODUCTION, WITH THE STATES AND 0.992) AND REFINED BULLION (FINENESS 0.992 AND OVER), OF DOMESTIC BULLION

	Sourec.	COINAGE MINTS.			ASSAY OFFICES.	
		Philadel- phia.	San Fran- cisco.	New Orleans.	New York.	Denver.
		<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>
1	Alabama.....	50 006		54.448		
2	Alaska.....	338.136	11,005.607	29.172	656.968	142.098
3	Arizona.....	809.162	28,738.093		156.324	29,644.071
4	California.....	266.616	196,467.425		3,760.668	87.023
5	Colorado.....	1,166.003	678.541		206.140	224,521.763
6	Georgia.....	528.429	71.247			
7	Idaho.....	1,875.588	887.089		113.716	462.927
8	Indiana.....	5.665				
9	Maryland.....	26.025				
10	Michigan.....				1.330	
11	Montana.....	3,024.954	123.625		3,246.088	9.299
12	Nevada.....		17,641.449			5.703
13	New Mexico.....		85.646		220.551	6,318.160
14	North Carolina.....	262.906			197.506	
15	Oregon.....	72.319	6,824.430		19.338	12.869
16	South Carolina.....	5.825			59.503	
17	South Dakota.....	244.415			264,637.689	299.979
18	Texas.....			.348		
19	Utah.....		1,708.110		60,247.940	6,345.402
20	Virginia.....	141.186			10.484	
21	Washington.....	483.858	120.928			
22	Wyoming.....	60.559			1.040	130.751
23	Other.....	454.783	15.245			
24	Porto Rico.....				181.389	
	Total unrefined.....	9,816.435	264.367.435	83.968	333,716.674	267,980.045
	Refinery bars (fineness below 0.992).....				337,256.262	459,485.401
	Refined bullion (fineness 0.992 and over).....		1,207,469.761		1,305,986.917	
	Total gold.....	9,816.435	1,471,837.196	83.968	1,976,959.853	727,465.446

IV.—DEPOSITS OF UNREFINED GOLD OF DOMESTIC PRODUCTION, WITH THE STATES AND 0.992) AND REFINED BULLION (FINENESS 0.992 AND OVER), OF DOMESTIC BULLION

	Source.	COINAGE MINTS.			ASSAY OFFICES.	
		Philadel- phia.	San Fran- cisco.	New Orleans.	New York.	Denver.
1	Alabama.....	\$930.34		\$1,012.99		
2	Alaska.....	6,290.90	\$204,755.48	542.73	\$12,222.66	\$2,643.68
3	Arizona.....	15,054.18	534,662.20		2,908.35	551,517.60
4	California.....	4,960.30	3,655,207.91		69,965.92	1,619.03
5	Colorado.....	21,693.08	12,624.02		3,835.16	4,177,149.07
6	Georgia.....	9,831.24	1,325.53			
7	Idaho.....	34,894.66	16,503.98		2,115.65	8,612.59
8	Indiana.....	105.40				
9	Maryland.....	484.19				
10	Michigan.....				24.74	
11	Montana.....	56,278.21	2,300.00		60,392.33	173.00
12	Nevada.....		328,213.00			106.10
13	New Mexico.....		1,593.41		4,103.28	117,547.16
14	North Carolina.....	4,891.27			3,674.53	
15	Oregon.....	1,345.47	126,966.14		359.78	239.42
16	South Carolina.....	108.37			1,107.03	
17	South Dakota.....	4,547.25			4,923,491.89	5,581.00
18	Texas.....			6.47		
19	Utah.....		31,778.79		1,120,891.91	118,053.99
20	Virginia.....	2,626.72			195.05	
21	Washington.....	9,002.01	2,249.82			
22	Wyoming.....	1,126.68			19.35	2,432.57
23	Other.....	8,461.08	283.63			
24	Porto Rico.....				3,374.68	
	Total unrefined.....	182,631.35	4,918,463.91	1,562.19	6,208,682.31	4,985,675.21
	Refinery bars (fineness below 0.992).....				6,274,535.13	8,548,565.57
	Refined bullion (fineness 0.992 and over).....		22,464,553.69		24,297,431.03	
	Total gold.....	182,631.35	27,383,017.60	1,562.19	36,780,648.47	13,534,240.78

TERRITORIES PRODUCING THE SAME, AND ALSO OF REFINERY BARS (FINENESS BELOW NOT DISTRIBUTED, BY WEIGHT, DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

ASSAY OFFICES.							Total.	
Carson.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.	Stand. ozs.	
Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	Stand. ozs.	
			31.110				135.564	1
			41.590	61.916		227,276.015	239,551.502	2
				65.822			59,413.472	3
1,767.702						39.485	202,388.919	4
				904.334			227,476.781	5
			2,537.611	6.087			3,143.374	6
	32,462.984	7,693.863				3,631.012	47,127.179	7
							5.665	8
							26.025	9
							1.330	10
	5,650.988	112,133.921		392.984		5,529.686	130,111.545	11
11,829.778	810.095	3,907.355		464.688			34,659.068	12
			3,328.928				6,624.357	13
	26,689.432					583.036	3,789.340	14
			2,605.762				34,201.424	15
					42,663.870		2,671.090	16
							307,845.953	17
							.348	18
			4.617				68,301.452	19
	173.913	1,892.226				950.105	156.287	20
							3,621.030	21
							192.350	22
							470.028	23
							181.389	24
13,597.480	65,787.412	125,627.365	8,549.618	1,895.831	42,663.870	238,009.339	1,372,095.472	
			2,844.053	2,504.999		508.900	802,599.615	
				4,411.136		11,733.198	2,529,601.012	
13,597.480	65,787.412	125,627.365	11,393.671	8,811.936	42,663.870	250,251.437	4,704,296.099	

TERRITORIES PRODUCING THE SAME, AND ALSO OF REFINERY BARS (FINENESS BELOW NOT DISTRIBUTED, BY VALUE, DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

ASSAY OFFICES.							Total.	
Carson.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.		
			\$578.78				\$2,522.11	1
			773.75	\$1,151.93		\$4,228,390.96	4,456,772.09	2
				1,224.60			1,105,366.93	3
\$32,887.48						734.60	3,765,375.24	4
				16,824.82			4,232,126.15	5
			47,210.96	113.24			58,480.97	6
	\$603,961.49	\$143,141.57				67,553.71	876,783.65	7
							105.40	8
							484.19	9
							24.74	10
	105,134.16	2,086,211.82		7,311.33		102,877.88	2,420,678.73	11
220,088.89	15,071.34	72,694.99		8,645.35			644,819.67	12
			61,933.46				123,243.85	13
	496,546.57					10,847.18	70,499.26	14
			48,479.08				636,304.56	15
					\$793,745.62		49,694.48	16
							5,727,365.76	17
							6.47	18
							1,270,724.69	19
			85.90				2,907.67	20
	3,235.44	35,204.18				17,676.37	67,367.82	21
							3,578.60	22
							8,744.71	23
							3,374.68	24
252,976.37	1,223,949.00	2,337,252.56	159,061.93	35,271.27	793,745.62	4,428,080.70	25,527,352.42	
			52,912.59	46,604.63		9,467.91	14,932,085.83	
				82,067.64		218,292.05	47,062,344.41	
252,976.37	1,223,949.00	2,337,252.56	211,974.52	163,943.54	793,745.62	4,655,840.66	87,521,782.66	

V.—DEPOSITS OF UNREFINED SILVER OF DOMESTIC PRODUCTION, WITH THE STATES 0.992) AND REFINED BULLION (FINENESS 0.992 AND OVER), OF DOMESTIC BULLION NOT

Source.		COINAGE MINTS.			ASSAY OFFICES.	
		Philadel- phia.	San Fran- cisco.	New Or- leans.	New York.	Denver.
		<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>
1	Alabama.....	14.55		16.23		
2	Alaska.....	31.99	2,400.73	2.26	56.59	16.54
3	Arizona.....	494.42	10,447.16		67.70	16,974.34
4	California.....	65.74	42,935.61		468.31	109.35
5	Colorado.....	283.77	149.67		3.10	82,417.82
6	Georgia.....	55.54	15.55			
7	Idaho.....	718.29	205.26		80.34	97.83
8	Indiana.....	.48				
9	Maryland.....	.58				
10	Michigan.....	2,602.37			31,797.37	
11	Montana.....	142.18	7.29		7,621.44	.89
12	Nevada.....		5,460.26			2.24
13	New Mexico.....		10.91		1,230.83	1,024.26
14	North Carolina.....	76.27			56.66	
15	Oregon.....	20.97	1,537.60		1.84	7.09
16	South Carolina.....	2.41				
17	South Dakota.....	66.65			114,610.27	216.06
18	Texas.....			.14		
19	Utah.....		1,564.18		3,717.38	1,573.45
20	Virginia.....	28.51			4.27	
21	Washington.....	171.85	15.22			
22	Wyoming.....	16.30			115.73	13.67
23	Other.....	114.72	126.59			
24	Porto Rico.....				40.94	
Total unrefined.....		4,907.59	64,876.03	18.63	159,872.77	102,453.54
Refinery bars (fineness below 0.992).....					110,793.65	2,263.94
Refined bullion (fineness 0.992 and over).....		5,578,294.25	8,274,744.35		1,125,837.13	
Total silver.....		5,583,201.84	8,339,620.38	18.63	1,396,503.55	104,717.48

VI.—DEPOSITS OF UNREFINED SILVER OF DOMESTIC PRODUCTION, WITH THE STATES 0.992) AND REFINED BULLION (FINENESS 0.992 AND OVER), OF DOMESTIC BULLION NOT

Source.		COINAGE MINTS.			ASSAY OFFICES.	
		Philadel- phia.	San Fran- cisco.	New Or- leans.	New York.	Denver.
1	Alabama.....	\$16.93		\$18.89		
2	Alaska.....	37.22	\$2,793.58	2.63	\$65.85	\$19.25
3	Arizona.....	575.33	12,156.70		78.78	19,751.96
4	California.....	76.50	49,961.44		544.94	127.24
5	Colorado.....	330.20	174.16		3.60	95,904.37
6	Georgia.....	64.63	18.09			
7	Idaho.....	835.83	238.85		93.49	113.84
8	Indiana.....	.56				
9	Maryland.....	.67				
10	Michigan.....	3,028.21			37,000.58	
11	Montana.....	165.45	8.48		8,868.58	1.04
12	Nevada.....		6,353.76			2.61
13	New Mexico.....		12.69		1,432.24	1,191.86
14	North Carolina.....	88.75			65.93	
15	Oregon.....	24.40	1,789.21		2.14	8.25
16	South Carolina.....	2.80				
17	South Dakota.....	77.56			133,364.68	251.41
18	Texas.....			.16		
19	Utah.....		1,820.14		4,325.68	1,830.92
20	Virginia.....	33.18			4.97	
21	Washington.....	199.97	17.71			
22	Wyoming.....	18.97			134.67	15.91
23	Other.....	133.49	147.30			
24	Porto Rico.....				47.64	
Total unrefined.....		5,710.65	75,492.11	21.68	186,033.77	119,218.66
Refinery bars (fineness below 0.992).....					128,923.51	2,634.40
Refined bullion (fineness 0.992 and over).....		6,491,106.04	9,628,793.42		1,310,065.03	
Total silver.....		6,496,816.69	9,704,285.53	21.68	1,625,022.31	121,853.06

AND TERRITORIES PRODUCING THE SAME, AND ALSO OF REFINERY BARS (FINENESS BELOW DISTRIBUTED, BY WEIGHT, DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

ASSAY OFFICES.							Total.	
Carson.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.		
<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	
			12.78				43.56	1
			2.79	9.41		26,570.82	29,091.13	2
				20.39			28,004.01	3
591.15						3.08	44,173.24	4
				394.84			83,249.20	5
			295.69	1.80			368.58	6
	9,584.25	1,854.24				1,192.97	13,733.18	7
							.48	8
							.58	9
							34,399.74	10
	2,524.48	15,903.05		117.10		115.36	26,431.79	11
7,555.04	374.67	1,494.51		32.55			14,919.27	12
							2,266.00	13
			902.61				1,035.54	14
	10,002.81					306.25	11,876.56	15
			281.87				284.28	16
					16,007.45		130,900.43	17
							.14	18
			.56				6,855.01	19
	42.35	743.27				288.18	33.34	20
							1,260.87	21
							145.70	22
							241.31	23
							40.94	24
8,146.19	22,528.56	19,995.07	1,496.30	576.09	16,007.45	28,476.66	429,354.88	
			9.73	8.99			113,076.31	
							14,978,875.73	
8,146.19	22,528.56	19,995.07	1,506.03	585.08	16,007.45	28,476.66	15,521,306.92	

AND TERRITORIES PRODUCING THE SAME, AND ALSO OF REFINERY BARS (FINENESS BELOW DISTRIBUTED, BY VALUE, DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

ASSAY OFFICES.							Total.	
Carson.	Boise.	Helena.	Charlotte.	St. Louis.	Deadwood.	Seattle.		
			\$14.87				\$50.69	1
			3.25	\$10.95		\$30,918.77	33,851.50	2
				23.73			32,586.50	3
\$687.88				459.45		3.58	51,401.58	4
			344.08	2.09			96,871.78	5
	\$11,152.58	\$2,157.66				1,388.18	428.89	6
							15,980.43	7
							.56	8
							.67	9
							40,028.79	10
	2,937.58	18,505.37		136.26		134.24	30,757.00	11
8,791.32	435.98	1,739.06		37.87			17,360.60	12
			1,050.31				2,636.79	13
	11,639.63					356.36	1,204.99	14
			327.99				13,819.99	15
					\$18,626.85		330.79	16
							152,320.50	17
							.16	18
			.65				7,976.74	19
	49.28	864.90				335.34	38.80	20
							1,467.20	21
							169.55	22
							280.79	23
							47.64	24
9,479.20	26,215.05	23,266.99	1,741.15	670.35	18,626.85	33,136.47	499,612.93	
			11.32	10.46			131,579.69	
							17,429,964.49	
9,479.20	26,215.05	23,266.99	1,752.47	680.81	18,626.85	33,136.47	18,061,157.11	

VII.—BARS MANUFACTURED OF GOLD AND SILVER, BY WEIGHT,

Description.	COINAGE MINTS.			ASSAY OFFICES.	
	Philadel- phia.	San Fran- cisco.	New Or- leans.	New York.	Denver.
GOLD.	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>
Fine bars.....	222, 296. 885	.....	664. 460	2, 739, 482. 535	.....
Mint bars.....	.....	.....	.....	320, 648. 236	.....
Standard bars.....	.....	.....	.....	152, 414. 388	.....
Unparted bars.....	34. 770	.....	.....	112. 167	728, 709. 947
Total gold.....	222, 331. 655	.....	664. 460	3, 212, 657. 326	728, 709. 947
SILVER.	.....	.....	.....	.....	.....
Fine bars.....	105, 030. 19	63, 685. 47	4, 543. 55	2, 942, 298. 90	.....
Mint bars.....	.....	.....	.....	185, 569. 02	.....
Standard bars.....	.....	.....	.....	.....	.....
Unparted bars.....	9. 37	.....	.....	. 63	105, 034. 88
Total silver.....	105, 039. 56	63, 685. 47	4, 543. 55	3, 127, 868. 55	105, 034. 88

VIII.—BARS MANUFACTURED OF GOLD AND SILVER, BY VALUE,

Description.	COINAGE MINTS.			ASSAY OFFICES.	
	Philadel- phia.	San Fran- cisco.	New Or- leans.	New York.	Denver.
GOLD.	.....	.....	.....	.....	.....
Fine bars.....	\$4,135,756.03	.....	\$12,362.00	\$50,967,116.92	.....
Mint bars.....	.....	.....	.....	5,965,548.58	.....
Standard bars.....	.....	.....	.....	2,835,616.52	.....
Unparted bars.....	646.89	.....	.....	2,086.83	\$13,557,264.13
Total gold.....	4,136,402.92	.....	12,362.00	59,770,368.85	13,557,264.13
SILVER.	.....	.....	.....	.....	.....
Fine bars.....	122,216.95	\$74,106.73	5,287.04	3,423,765.99	.....
Mint bars.....	.....	.....	.....	215,934.86	.....
Standard bars.....	.....	.....	.....	.....	.....
Unparted bars.....	10.90	.....	.....	. 73	122,222.40
Total silver.....	122,227.85	74,106.73	5,287.04	3, 639, 701. 58	122,222.40
Total gold and silver.....	4,258,630.77	74,106.73	17,649.04	63, 410, 070. 43	13, 679, 486. 53

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

ASSAY OFFICES.							Total.
Carson.	Boise.	Helena.	Charlotte.	St. Louis.	Dead-wood.	Seattle.	
<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>
						13,705.063	2,976,148.943
							320,648.236
							152,414.388
13,605.338	65,787.412	137,230.785	11,585.040	10,179.847	42,663.870	823,634.494	1,833,543.670
13,605.338	65,787.412	137,230.785	11,585.040	10,179.847	42,663.870	837,339.557	5,282,755.237
							3,115,558.11
							185,569.02
8,152.43	22,528.56	28,475.27	1,607.90	849.85	16,007.45	165,271.75	347,938.09
8,152.43	22,528.56	28,475.27	1,607.90	849.85	16,007.45	165,271.75	3,649,065.22

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

ASSAY OFFICES.							Total.
Carson.	Boise.	Helena.	Charlotte.	St. Louis.	Dead-wood.	Seattle.	
						\$254,977.91	\$55,370,212.86
							5,965,548.58
							2,835,616.52
\$253,122.57	\$1,223,949.00	\$2,553,130.11	\$215,534.84	\$189,391.50	\$793,745.62	15,323,430.61	34,112,302.10
253,122.57	1,223,949.00	2,553,130.11	215,534.84	189,391.50	793,745.62	15,578,408.52	98,283,680.06
							3,625,376.71
							215,934.86
9,486.46	26,215.05	33,134.86	1,871.01	988.90	18,626.85	192,316.21	404,873.37
9,486.46	26,215.05	33,134.86	1,871.01	988.90	18,626.85	192,316.21	4,246,184.94
262,609.03	1,250,164.05	2,586,264.97	217,405.85	190,380.40	812,372.47	15,770,724.73	102,529,865.00

**IX.—MUTILATED AND UNCURRENT DOMESTIC GOLD AND SILVER COINS TRANS-
DURING THE CALENDAR YEAR**

Denomination.	PHILADELPHIA.		SAN FRANCISCO.		NEW ORLEANS.	
	Received from Treasury.	Purchased.	Received from Treasury.	Purchased.	Received from Treasury.	Purchased.
GOLD.						
Double eagles.....	\$481,340.00	\$14,120.00	\$8,800.00	\$4,580.00	\$34,560.00	\$8,200.00
Eagles.....	339,600.00	12,830.00	1,110.00	1,560.00	22,680.00	5,250.00
Half eagles.....	460,615.00	52,990.00	8,660.00	5,705.00	30,300.00	3,845.00
Three-dollar pieces....	75.00	45.00	3.00	12.00	3.00	.....
Quarter eagles.....	12,017.50	3,150.00	167.50	55.00	847.50	32.50
Dollars.....	58.00	197.00	3.00	20.00	.....	13.00
Total gold, face value (a).....	1,293,705.50	83,332.00	18,743.50	11,932.00	88,390.50	17,340.50
SILVER.						
Trade dollars.....	.....	227.00	.....	.....	.....	36.00
Standard dollars.....	.....	1,205.00	.....	.....	.....	356.00
Half dollars.....	751,527.50	775.00	50,000.00	26.50	279,967.50	162.00
Quarter dollars.....	561,730.00	436.50	26,000.00	9.50	168,304.75	158.00
Twenty-cent pieces....	20.80	.....	.....	.....	11.20	6.60
Dimes.....	472,076.50	205.70	10,000.00	4.30	117,458.00	190.70
Half dimes.....	1,044.85	33.15	.....	.....	53.45	14.05
Three-cent pieces.....	85.17	10.38	.....	.....	5.10	.15
Total silver, face value.....	1,786,484.82	2,892.73	86,000.00	40.30	565,800.00	923.50
HAWAIIAN SILVER.						
Dollars.....	.....	.....	436,000.00	.....	.....	.....
Half dollars.....	.....	.....	294,000.00	.....	.....	.....
Quarter dollars.....	.....	.....	55,000.00	.....	.....	.....
Total Hawaiian, face value.....	.....	.....	785,000.00	.....	.....	.....
SUMMARY.						
	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>	<i>Stand. ozs.</i>
Gold coins.....	69,012.600	4,443.430	992.080	592.050	4,715.860	923.008
Silver coins.....	1,351,393.04	2,350.01	65,061.20	30.30	425,224.20	717.92
Hawaiian silver coins.....	.....	.....	650,822.08	.....	.....	.....
Gold, coining value....	\$1,283,955.35	\$82,668.47	\$18,457.30	\$11,014.88	\$87,736.93	\$17,172.24
Silver, subsidiary value	1,681,359.93	2,923.81	80,947.05	37.70	529,050.33	893.21
Hawaiian, subsidiary value.....	.....	.....	809,732.00	.....	.....	.....
Loss, gold.....	9,750.15	663.53	286.20	917.12	653.57	168.26
Loss, subsidiary.....	105,124.89	.....	5,052.95	2.60	36,749.67	30.29
Gain, Hawaiian sub'y.	.....	.....	24,732.00	.....	.....	.....
Gain, subsidiary silver	.....	31.08	.....	.....	.....	.....

^a This does not contain the nominal value (\$72,552) of gold coin transferred on order 6439 from Assistant Treasurer United States at St. Louis, December 28, 1903, because the coin arrived too late at the Mint to be taken up in the accounts for the December quarter.

**X.—QUANTITY AND COST OF SILVER USED IN THE COINAGE OF SILVER DOLLARS,
DOLLARS COINED, AND SEIGNIORAGE ON SAME DURING THE CALENDAR YEAR 1903.**

MINT AT PHILADELPHIA.

Month.	Used in coinage.		Dollars coined.	Seigniorage.
	Standard ounces.	Cost.		
1903.				
January.....	429,687.50	\$349,901.00	\$500,000	\$150,099.00
February.....	859,375.00	699,802.00	1,000,000	300,198.00
March.....	452,310.55	368,323.29	526,325	158,001.71
April.....	367,812.50	299,515.25	428,000	128,484.75
May.....				
June.....	1,718,853.13	1,399,687.98	2,000,120	600,432.02
July.....				
August.....				
September.....	64.45	52.48	75	22.52
October.....				
November.....	55,000.00	44,787.33	64,000	19,212.67
December.....	115,358.20	93,937.92	134,235	40,297.08
Total.....	3,998,461.33	3,256,007.25	4,652,755	1,396,747.75

MINT AT SAN FRANCISCO.

1903.				
January.....				
February.....				
March.....				
April.....				
May.....				
June.....	429,687.50	\$349,900.91	\$500,000	\$150,099.09
July.....				
August.....	63,593.75	51,785.33	74,000	22,214.67
September.....	92,812.50	75,578.60	108,000	32,421.40
October.....	199,375.00	162,354.03	232,000	69,645.97
November.....	85,078.12	69,280.38	99,000	29,719.62
December.....	195,937.50	159,554.84	228,000	68,445.16
Total.....	1,066,484.37	868,454.09	1,241,000	372,545.91

MINT AT NEW ORLEANS.

1903.				
January.....	859,375.00	\$699,801.98	\$1,000,000	\$300,198.02
February.....	300,781.25	244,930.69	350,000	105,069.31
March.....	429,687.50	349,900.99	500,000	150,099.01
April.....	429,687.50	349,900.99	500,000	150,099.01
May.....	429,687.50	349,900.99	500,000	150,099.01
June.....	1,074,218.75	874,752.47	1,250,000	375,247.53
July.....				
August.....				
September.....				
October.....				
November.....				
December.....	300,781.25	244,930.69	350,000	105,069.31
Total.....	3,824,218.75	3,114,118.80	4,450,000	1,335,881.20

SUMMARY.

1903.				
January.....	1,289,062.50	\$1,049,702.98	\$1,500,000	\$450,297.02
February.....	1,160,156.25	944,732.69	1,350,000	405,267.31
March.....	881,998.05	718,224.28	1,026,325	308,100.72
April.....	797,500.00	649,416.24	928,000	278,583.76
May.....	429,687.50	349,900.99	500,000	150,099.01
June.....	3,222,759.38	2,624,341.36	3,750,120	1,125,778.64
July.....				
August.....	63,593.75	51,785.33	74,000	22,214.67
September.....	92,876.95	75,631.08	108,075	32,443.92
October.....	199,375.00	162,354.03	232,000	69,645.97
November.....	140,078.12	114,067.71	163,000	48,932.29
December.....	612,076.95	498,423.45	712,235	213,811.55
Total.....	8,889,164.45	7,238,580.14	10,343,755	3,105,174.86

XI.—QUANTITY AND COST OF SILVER OBTAINED BY TRANSFER AND PURCHASE FOR SUBSIDIARY SILVER COINAGE, AMOUNT AND COST USED IN COINAGE, COINAGE DERIVED THEREFROM, AND SEIGNIORAGE ON SAME DURING THE CALENDAR YEAR 1903.

Source from which bul- lion was obtained.	Obtained by transfer and purchase.		Used in coinage.		Coinage.	Seigniorage.
	Quantity.	Cost.	Quantity.	Cost.		
MINT AT PHILADELPHIA.						
Silver bullion on hand Jan. 1, 1903.....	<i>Stand. oz.</i> 651, 598.12	\$425, 985.01	<i>Stand. oz.</i>			
Uncurrent coin trans- ferred from Treasury..	1, 351, 393.04	1, 681, 359.93	1, 367, 982.50	\$1,702,000.00	\$1, 702, 000.00	
Amount transferred from act of July 14, 1890, un- der act of Mar. 3, 1903...	3, 057, 465.00	2, 489, 739.77	3, 057, 465.00	2, 489, 739.77	3, 804, 000.00	\$1, 314, 260.23
Porto Rican coins re- deemed and melted.....	263.03	203.29	263.03	203.29	327.25	123.96
Partings, charges, and fractions purchased....	190, 794.84	87, 990.64	515.81	265.73	641.75	376.02
Melted assay coins pur- chased.....	671.33	796.90				
Mutilated coins pur- chased.....	1, 663.84	763.24				
Surplus bullion pur- chased.....	16, 541.43	7, 443.64				
Total.....	5, 270, 390.63	4, 694, 282.42	4, 426, 226.34	4, 192, 208.79	5, 506, 969.00	1, 314, 760.21
Used in coinage, calendar year 1903.....	4, 426, 226.34	4, 192, 208.79				
Silver contained in un- parted gold bar sold...	16.35	7.36				
Sold in sweeps.....	8, 137.34	4, 189.24				
Wasted by operative offi- cers.....	13, 977.61	7, 198.84				
Balance on hand Dec. 31, 1903.....	822, 032.99	490, 678.19				
Total.....	5, 270, 390.63	4, 694, 282.42				
MINT AT SAN FRANCISCO.						
Silver bullion on hand Jan. 1, 1903.....	199, 444.40	115, 975.72				
Uncurrent coins trans- ferred from Treasury..	65, 061.20	80, 947.05	72, 933.00	90, 716.00	90, 716.00	
Amount transferred from act of July 14, 1890, un- der act of Mar. 14, 1900..	325, 518.75	265, 074.75	325, 518.75	265, 074.75	405, 000.00	139, 925.25
Hawaiian coins redeemed and melted under act of Jan. 14, 1903.....	650, 822.08	785, 000.00	630, 943.75	761, 057.35	785, 000.00	23, 942.65
Partings, charges, and fractions purchased....	238, 975.48	113, 084.36				
Mutilated coins pur- chased.....	30.30	13.64				
Surplus bullion pur- chased.....	10, 135.59	4, 675.46				
Total.....	1, 489, 987.80	1, 364, 770.98	1, 029, 395.50	1, 116, 848.10	1, 280, 716.00	163, 867.90
Used in coinage, calendar year 1903.....	1, 029, 375.50	1, 116, 848.10				
Sold in sweeps.....	5, 808.69	2, 696.22				
Wasted by operative offi- cers.....	2, 094.05	965.98				
Balance on hand Dec. 31, 1903.....	452, 709.56	244, 260.68				
Total.....	1, 489, 987.80	1, 364, 770.98				

XI.—QUANTITY AND COST OF SILVER OBTAINED BY TRANSFER AND PURCHASE FOR
SUBSIDIARY SILVER COINAGE, ETC.—Continued.

Source from which bul- lion was obtained.	Obtained by transfer and purchase.		Used in coinage.		Coinage.	Seigniorage.
	Quantity.	Cost.	Quantity.	Cost.		
MINT AT NEW ORLEANS.	<i>Stand. oz.</i>		<i>Stand. oz.</i>			
Silver bullion on hand Jan. 1, 1903.....	12, 319.63	\$14, 016.48				
Uncurrent coins trans- ferred from Treasury ..	425, 224.20	529, 050.33	430, 006.25	\$535, 000.00	\$535, 000.00	
Amount transferred from act of July 14, 1890, un- der act of Mar. 14, 1900..	1, 774, 680.00	1, 445, 148.60	1, 774, 680.00	1, 445, 148.60	2, 208, 000.00	\$762, 851.40
Partings, charges, and fractions purchased....	14, 882.47	7, 235.37				
Mutilated coins pur- chased.....	302.50	141.55				
Surplus bullion pur- chased.....	55.16	25.31				
Total.....	2, 227, 463.96	1, 995, 617.64	2, 204, 686.25	1, 980, 148.60	2, 743, 000.00	762, 851.40
Used in coinage, calendar year 1903	2, 204, 686.25	1, 980, 148.60				
Sold in sweeps	10, 113.99	4, 841.81				
Wasted by operative offi- cers.....	3, 990.45	1, 826.81				
Balance on hand Dec. 31, 1903.....	8, 673.27	8, 800.42				
Total.....	2, 227, 463.96	1, 995, 617.64				
SUMMARY.						
Silver bullion on hand Jan. 1, 1903.....	863, 362.15	555, 977.21				
Uncurrent coins trans- ferred from Treasury ..	1, 841, 678.44	2, 291, 357.31	1, 870, 921.75	2, 327, 716.00	2, 327, 716.00	
Amount transferred from act of July 14, 1890, un- der—						
Act of Mar. 14, 1900 ..	2, 100, 198.75	1, 710, 223.35	2, 100, 198.75	1, 710, 223.35	2, 613, 000.00	902, 776.65
Act of Mar. 3, 1903....	3, 057, 465.00	2, 489, 739.77	3, 057, 465.00	2, 489, 739.77	3, 804, 000.00	1, 314, 260.23
Porto Rican coins re- deemed and melted....	263.03	203.29	263.03	203.29	327.25	123.96
Hawaiian coins redeemed and melted.....	650, 822.08	785, 000.00	630, 943.75	761, 057.35	785, 000.00	23, 942.65
Partings, charges, and fractions purchased....	444, 652.79	208, 310.37	515.81	265.73	641.75	376.02
Melted assay coins pur- chased.....	671.33	796.90				
Mutilated coins pur- chased.....	1, 996.64	918.43				
Surplus bullion pur- chased.....	26, 732.18	12, 144.41				
Total.....	8, 987, 842.39	8, 054, 671.04	7, 660, 308.09	7, 289, 205.49	9, 530, 685.00	2, 241, 479.51
Used in coinage, calendar year 1903	7, 660, 288.09	7, 289, 205.49				
Silver contained in un- parted bar sold.....	16.35	7.36				
Sold in sweeps	24, 060.02	11, 727.27				
Wasted by operative offi- cers.....	20, 062.11	9, 991.63				
Balance on hand Dec. 31, 1903.....	1, 283, 415.82	743, 739.29				
Total.....	8, 987, 842.39	8, 054, 671.04				

XII.—COINAGE EXECUTED AT THE MINTS OF THE UNITED STATES

Denomination.	PHILADELPHIA.	
	Pieces.	Value.
GOLD.		
Double eagles.....	287, 428	\$5, 748, 560. 00
Eagles.....	125, 926	1, 259, 260. 00
Half eagles.....	227, 024	1, 135, 120. 00
Quarter eagles.....	201, 257	503, 142. 50
Dollars, Louisiana Purchase Exposition.....	175, 178	175, 178. 00
Total gold.....	1, 016, 813	8, 821, 260. 50
SILVER.		
Dollars, act of July 14, 1890.....	4, 652, 755	4, 652, 755. 00
Subsidiary:		
Half dollars.....	2, 278, 755	1, 139, 377. 50
Quarter dollars.....	9, 670, 064	2, 417, 516. 00
Dimes.....	19, 500, 755	1, 950, 075. 50
Total subsidiary.....	31, 449, 574	5, 506, 969. 00
Total silver.....	36, 102, 329	10, 159, 724. 00
MINOR.		
Five-cent nickels.....	28, 006, 725	1, 400, 336. 25
One-cent bronze.....	85, 094, 493	850, 944. 93
Total minor.....	113, 101, 218	2, 251, 281. 18
Total coinage.....	150, 220, 360	21, 232, 265. 68

Coinage of silver dollars:		
Act of Feb. 28, 1878 (Bland-Allison).....		\$378, 166, 793
Act of July 14, 1890 (Sherman) as follows:		
From July 14, 1890, to repeal of purchasing clause of Sherman Act, Oct.		
31, 1893.....	\$36, 087, 285	
From Nov. 1, 1893, to June 12, 1898.....	42, 139, 872	
Coined under war-revenue bill approved June 13, 1898.....	99, 987, 538	
		178, 214, 695
Act of Mar. 3, 1891, recoinage of trade dollars.....		5, 078, 472
Total coinage.....		561, 459, 960

DURING THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

SAN FRANCISCO.		NEW ORLEANS.		TOTAL.	
Pieces.	Value.	Pieces.	Value.	Pieces.	Value.
954,000	\$19,080,000.00			1,241,428	\$24,828,560.00
538,000	5,380,000.00	112,771	\$1,127,710.00	776,697	7,766,970.00
1,855,000	9,275,000.00			2,082,024	10,410,120.00
				201,257	503,142.50
				175,178	175,178.00
3,347,000	33,735,000.00	112,771	1,127,710.00	4,476,584	43,683,970.50
1,241,000	1,241,000.00	4,450,000	4,450,000.00	10,343,755	10,343,755.00
1,920,772	960,386.00	2,100,000	1,050,000.00	6,299,527	3,149,763.50
1,036,000	259,000.00	3,500,000	875,000.00	14,206,064	3,551,516.00
613,300	61,330.00	8,180,000	818,000.00	28,294,055	2,829,405.50
3,570,072	1,280,716.00	13,780,000	2,743,000.00	48,799,646	9,530,685.00
4,811,072	2,521,716.00	18,230,000	7,193,000.00	59,143,401	19,874,440.00
				28,006,725	1,400,336.25
				85,094,493	850,944.93
				113,101,218	2,251,281.18
8,158,072	36,256,716.00	18,342,771	8,320,710.00	176,721,203	65,809,691.68

XIII.—ASSETS AND LIABILITIES OF THE UNITED STATES

ASSETS.

Institutions.	Gold bullion.		Silver bullion.		Value of gold bullion shipped for coinage.
	Quantity.	Value.	Quantity.	Value (cost).	
COINAGE MINTS.					
Philadelphia.....	<i>Standard ozs.</i> 5,541,133.549	\$103,090,856.77	<i>Standard ozs.</i> 9,075,255.74	\$7,211,401.71	.....
For Philippine coinage.....			1,200.60	635.57	.....
San Francisco.....	2,183,639.324	40,625,847.86	2,925,080.81	2,257,549.60	.....
For Philippine coinage.....			375,573.54	214,799.78	.....
New Orleans.....	37,567.004	698,920.70	3,765,591.45	3,068,115.34	.....
ASSAY OFFICES.					
New York.....	3,447,890.298	64,146,796.13	787,797.74	436,744.48	.....
Carson.....	427.330	7,950.27	2,322.33	1,227.50	\$19,247.15
Denver.....	19,878.566	369,833.79	2,230.30	1,115.15	104,554.66
Helena.....	7,401.643	137,704.98	1,244.48	622.24	47,046.75
Boise.....	2,671.426	49,700.95	1,007.40	503.70	.....
Charlotte.....	125.159	2,328.53	37.20	18.60	.....
St. Louis.....	2,041.263	37,976.98	40.52	20.26	.....
Deadwood.....	1,551.663	28,868.14	857.44	428.72	.....
Seattle.....	12,901.373	240,025.54	2,659.50	1,329.75	159,923.15
Total.....	11,257,228.598	209,436,810.64	16,940,899.05	13,194,512.40	330,771.71

LIABILITIES.

Institutions.	Bullion fund.	Undeposited earnings.
COINAGE MINTS.		
Philadelphia.....	\$273,851,542.44	.....
San Francisco.....	206,863,714.03	.....
New Orleans.....	31,620,436.44	\$71.57
ASSAY OFFICES.		
New York.....	65,257,985.28	19,779.37
Carson.....	147,255.63	198.21
Denver.....	1,323,686.46	2,400.76
Helena.....	243,323.20	1,250.14
Boise.....	165,180.42	158.80
Charlotte.....	26,908.75	16.73
St. Louis.....	58,591.58	33.43
Deadwood.....	113,466.06	135.97
Seattle.....	1,064,510.45	3,351.60
Total.....	580,736,600.74	27,396.58

MINTS AND ASSAY OFFICES, DECEMBER 31, 1903.

ASSETS.

Gold coin.	Silver coin.	Credit balance with assistant treasurer and depository banks.	Minor coin.	Minor coin-age metal.	Deficiencies.	Total.
\$61,146,605.00	\$102,683,925.82	<i>a</i> \$44,446.21	\$111,453.66	\$140,868.81	\$13,543.82	\$274,443,101.80
102,759,185.00	58,146,450.12	<i>a</i> 3,031,553.21			413,557.96	635.57 207,234,143.75
746,410.00	27,192,017.07	100,018.30			23,818.00	214,799.78 31,829,299.41
874,725.00	2,471.87	<i>b</i> 1,597,952.90				67,058,690.38
7,270.00	5,389.81	30,819.36			75,549.75	147,453.84
		850,583.62				1,326,087.22
		59,199.37				244,573.34
		115,134.57				165,339.22
		24,578.35				26,925.48
		20,627.77				58,625.01
		84,305.17				113,602.03
		667,415.75				1,068,694.19
165,534,195.00	188,030,254.69	6,626,634.58	111,453.66	140,868.81	526,469.53	583,931,971.02

a Gold coin.*b* Gold coin, \$1,578,042.51; silver coin, \$19,910.39.

LIABILITIES.

Seigniorage on silver.	Unpaid depositors.	Minor coinage profits.	Minor coin metal fund.	Unpaid cent depositors and subtreasury minor coin transfers.	Total.
\$233,472.93	\$106,399.53	\$47,253.53	\$49,165.40	\$155,903.54	\$274,443,737.37
92,387.81	492,841.69				207,448,943.53
208,717.61	73.79				31,829,299.41
	1,780,925.73				67,058,690.38
					147,453.84
					1,326,087.22
					244,573.34
					165,339.22
					26,925.48
					58,625.01
					113,602.03
	832.14				1,068,694.19
534,578.35	2,381,072.88	47,253.53	49,165.40	155,903.54	583,931,971.02

XIV.—UNREFINED GOLD AND SILVER OF DOMESTIC PRODUCTION, BY VALUE, ITS DISTRIBUTION BY STATES AND TERRITORIES; ALSO REFINED DOMESTIC BULLION (NOT DISTRIBUTED) DEPOSITED AT THE MINTS AND ASSAY OFFICES FROM THEIR ORGANIZATION TO THE CLOSE OF THE CALENDAR YEAR ENDED DECEMBER 31, 1903.

Locality.	Gold.	Silver.	Total.
Alabama.....	\$279,858.77	\$884.24	\$280,743.01
Alaska.....	19,440,092.66	167,526.27	19,607,618.93
Arizona.....	14,805,447.66	14,265,093.21	29,070,540.87
California.....	796,713,755.13	4,633,487.63	801,347,242.76
Connecticut.....	125.82	.....	125.82
Colorado.....	97,828,178.00	25,447,367.35	123,275,545.35
Georgia.....	10,243,685.79	12,054.52	10,255,740.31
Idaho.....	44,045,321.44	2,129,323.34	46,174,644.78
Indiana.....	438.86	2.29	441.15
Iowa.....	1,318.17	8.03	1,326.20
Kansas.....	159.83	1.02	160.85
Maine.....	35,703.62	3,719.21	39,422.83
Maryland.....	22,523.93	48.72	22,572.65
Michigan.....	502,871.93	4,390,474.13	4,893,346.06
Minnesota.....	9,180.62	118.57	9,299.19
Missouri.....	893.61	538.62	1,432.23
Montana.....	92,134,577.83	22,607,935.96	114,742,513.79
Nebraska.....	2,340.26	273,226.13	275,566.39
Nevada.....	45,701,359.07	105,756,179.25	151,457,538.32
New Hampshire.....	481.34	1.75	483.09
New Mexico.....	7,533,587.32	7,263,779.08	14,797,366.40
New York.....	1,058.83	.62	1,059.45
North Carolina.....	12,215,068.01	73,316.81	12,288,384.82
Oklahoma.....	181.69	3.42	185.11
Oregon.....	28,770,863.72	217,813.21	28,988,676.93
South Carolina.....	2,922,001.40	7,468.40	2,929,469.80
South Dakota.....	91,446,775.76	1,704,723.11	93,151,498.87
Tennessee.....	92,554.55	18.67	92,573.22
Texas.....	11,641.27	3,462.97	15,104.24
Utah.....	9,042,978.76	20,088,016.57	29,130,995.33
Vermont.....	80,036.35	99.28	80,135.63
Virginia.....	1,796,570.42	673.82	1,797,244.24
Washington.....	2,388,298.74	48,873.85	2,437,172.59
West Virginia.....	243.74	3.72	247.46
Wisconsin.....	1,109.77	38.54	1,148.31
Wyoming.....	1,010,184.29	14,414.87	1,024,599.16
Other sources.....	42,227,559.10	42,963,316.93	85,190,876.03
Porto Rico (since 1902).....	5,798.75	117.21	5,915.96
Philippine Islands (since 1902).....	243.82	2.94	246.76
Unrefined.....	1,321,315,970.63	252,074,134.26	1,573,389,204.89
Refined.....	972,504,582.47	582,833,594.92	1,555,338,177.39
Total.....	2,293,819,653.10	834,907,729.18	3,128,727,382.28

**XV.—PRODUCT OF GOLD AND SILVER IN THE UNITED STATES FROM 1792 TO 1844,
AND ANNUALLY SINCE.**

[The estimate for 1792-1873 is by R. W. Raymond, commissioner, and since by Director of the Mint.]

Year.	Gold.	Silver (coining value).	Total.
April 2, 1792-July 31, 1834.....	\$14,000,000	Insignificant.	\$14,000,000
July 31, 1834-December 31, 1844.....	7,500,000	\$250,000	7,750,000
1845.....	1,008,000	50,000	1,058,000
1846.....	1,140,000	50,000	1,190,000
1847.....	889,000	50,000	939,000
1848.....	10,000,000	50,000	10,050,000
1849.....	40,000,000	50,000	40,050,000
1850.....	50,000,000	50,000	50,050,000
1851.....	55,000,000	50,000	55,050,000
1852.....	60,000,000	50,000	60,050,000
1853.....	65,000,000	50,000	65,050,000
1854.....	60,000,000	50,000	60,050,000
1855.....	55,000,000	50,000	55,050,000
1856.....	55,000,000	50,000	55,050,000
1857.....	55,000,000	50,000	55,050,000
1858.....	50,000,000	500,000	50,500,000
1859.....	50,000,000	100,000	50,100,000
1860.....	46,000,000	150,000	46,150,000
1861.....	43,000,000	2,000,000	45,000,000
1862.....	39,200,000	4,500,000	43,700,000
1863.....	40,000,000	8,500,000	48,500,000
1864.....	46,100,000	11,000,000	57,100,000
1865.....	53,225,000	11,250,000	64,475,000
1866.....	53,500,000	10,000,000	63,500,000
1867.....	51,725,000	13,500,000	65,225,000
1868.....	48,000,000	12,000,000	60,000,000
1869.....	49,500,000	12,000,000	61,500,000
1870.....	50,000,000	16,000,000	66,000,000
1871.....	43,500,000	23,000,000	66,500,000
1872.....	36,000,000	28,750,000	64,750,000
1873.....	36,000,000	35,750,000	71,750,000
1874.....	33,500,000	37,300,000	70,800,000
1875.....	33,400,000	31,700,000	65,100,000
1876.....	39,900,000	38,800,000	78,700,000
1877.....	46,900,000	39,800,000	86,700,000
1878.....	51,200,000	45,200,000	96,400,000
1879.....	38,900,000	40,800,000	79,700,000
1880.....	36,000,000	39,200,000	75,200,000
1881.....	34,700,000	43,000,000	77,700,000
1882.....	32,500,000	46,800,000	79,300,000
1883.....	30,000,000	46,200,000	76,200,000
1884.....	30,800,000	48,800,000	79,600,000
1885.....	31,800,000	51,600,000	83,400,000
1886.....	35,000,000	51,000,000	86,000,000
1887.....	33,000,000	53,350,000	86,350,000
1888.....	33,175,000	59,195,000	92,370,000
1889.....	32,800,000	64,646,000	97,446,000
1890.....	32,845,000	70,465,000	103,310,000
1891.....	33,175,000	75,417,000	108,592,000
1892.....	33,000,000	82,101,000	115,101,000
1893.....	35,955,000	77,576,000	113,531,000
1894.....	39,500,000	64,000,000	103,500,000
1895.....	46,610,000	72,051,000	118,661,000
1896.....	53,088,000	76,069,000	129,157,000
1897.....	57,363,000	69,637,000	127,000,000
1898.....	64,463,000	70,384,000	134,847,000
1899.....	71,053,000	70,807,000	141,860,000
1900.....	79,171,000	74,533,000	153,704,000
1901.....	78,667,000	71,358,000	150,025,000
1902.....	80,000,000	71,758,000	151,758,000
1903.....	73,592,000	70,206,000	143,798,000
Total.....	2,617,344,000	1,943,683,000	4,561,027,000

XVI.—HIGHEST, LOWEST, AND AVERAGE PRICE OF BAR SILVER IN LONDON, PER OUNCE BRITISH STANDARD (.925), SINCE 1833, AND THE EQUIVALENT IN UNITED STATES GOLD COIN OF AN OUNCE 1,000 FINE, TAKEN AT THE AVERAGE PRICE.

Calendar year.	Highest quotation.	Lowest quotation.	Average quotation.	Value of a fine ounce at average quotation.	Calendar year.	Highest quotation.	Lowest quotation.	Average quotation.	Value of a fine ounce at average quotation.
	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>Dollars.</i>		<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>Dollars.</i>
1833.....	59 ⁷ / ₈	58 ³ / ₄	59 ³ / ₁₆	1.297	1869.....	61	60	60 ⁷ / ₁₆	1.325
1834.....	60 ¹ / ₄	59 ³ / ₈	59 ¹ / ₁₆	1.313	1870.....	60 ³ / ₄	60 ¹ / ₄	60 ⁹ / ₁₆	1.328
1835.....	60	59 ¹ / ₄	59 ¹ / ₁₆	1.308	1871.....	61	60 ³ / ₁₆	60 ¹ / ₂	1.326
1836.....	60 ³ / ₈	59 ⁵ / ₈	60	1.315	1872.....	61 ¹ / ₈	59 ⁷ / ₈	60 ⁵ / ₁₆	1.322
1837.....	60 ⁵ / ₈	59	59 ⁹ / ₁₆	1.305	1873.....	59 ¹ / ₁₆	57 ⁷ / ₈	59 ³ / ₁₆	1.29769
1838.....	60 ⁵ / ₈	59 ¹ / ₂	59 ⁷ / ₁₆	1.304	1874.....	59 ¹ / ₁₆	57 ¹ / ₄	58 ⁵ / ₁₆	1.27883
1839.....	60 ⁵ / ₈	60	60 ³ / ₈	1.323	1875.....	57 ⁵ / ₈	55 ¹ / ₂	56 ¹ / ₁₆	1.24233
1840.....	60 ³ / ₄	60 ¹ / ₈	60 ³ / ₈	1.323	1876.....	58 ¹ / ₂	46 ³ / ₄	53 ¹ / ₂	1.16414
1841.....	60 ³ / ₈	59	60 ¹ / ₁₆	1.316	1877.....	58 ¹ / ₂	53 ¹ / ₄	54 ¹ / ₁₆	1.20189
1842.....	60	59 ¹ / ₄	59 ⁷ / ₁₆	1.303	1878.....	55 ¹ / ₄	49 ¹ / ₂	52 ⁵ / ₈	1.15358
1843.....	59 ³ / ₈	59	59 ³ / ₁₆	1.297	1879.....	53 ³ / ₈	58 ⁵ / ₈	51 ¹ / ₄	1.12392
1844.....	59 ³ / ₄	59 ¹ / ₄	59 ¹ / ₂	1.304	1880.....	52 ¹ / ₁₆	51 ¹ / ₂	52 ¹ / ₄	1.14507
1845.....	59 ¹ / ₂	58 ³ / ₅	59 ¹ / ₄	1.298	1881.....	52 ³ / ₈	50 ⁷ / ₈	51 ³ / ₄	1.13229
1846.....	60 ¹ / ₈	59	59 ⁵ / ₁₆	1.300	1882.....	52 ³ / ₈	50	51 ¹ / ₁₆	1.13562
1847.....	60 ³ / ₈	58 ³ / ₈	59 ¹ / ₁₆	1.308	1883.....	51 ³ / ₁₆	50 ¹ / ₁₆	50 ⁹ / ₁₆	1.10874
1848.....	60	58 ¹ / ₂	59 ¹ / ₂	1.304	1884.....	51 ³ / ₈	49 ¹ / ₂	50 ¹ / ₁₆	1.11068
1849.....	60	59 ¹ / ₂	59 ³ / ₄	1.309	1885.....	50	46 ³ / ₈	48 ⁹ / ₁₆	1.06510
1850.....	61 ¹ / ₂	59 ¹ / ₂	61 ¹ / ₁₆	1.316	1886.....	47	42	45 ³ / ₈	.99467
1851.....	61 ³ / ₈	60	61	1.337	1887.....	47 ¹ / ₈	43 ¹ / ₄	44 ¹ / ₁₆	.97946
1852.....	61 ⁷ / ₈	59 ⁷ / ₈	60 ¹ / ₂	1.326	1888.....	44 ⁹ / ₁₆	41 ⁵ / ₈	42 ⁷ / ₈	.93974
1853.....	61 ¹ / ₅	60	61 ¹ / ₂	1.348	1889.....	44 ³ / ₈	41 ¹ / ₁₆	42 ¹ / ₁₆	.93511
1854.....	61 ⁷ / ₈	60 ⁷ / ₈	61 ¹ / ₂	1.348	1890.....	54 ⁵ / ₈	43 ⁵ / ₈	47 ³ / ₄	1.04634
1855.....	61 ³ / ₈	60	61 ⁵ / ₁₆	1.344	1891.....	48 ⁵ / ₄	43 ⁵ / ₈	45 ¹ / ₁₆	.98800
1856.....	62 ¹ / ₄	60 ¹ / ₂	61 ⁵ / ₁₆	1.344	1892.....	43 ³ / ₄	37 ⁷ / ₈	39 ³ / ₄	.87145
1857.....	62 ³ / ₈	61	61 ³ / ₄	1.353	1893.....	38 ³ / ₄	30 ¹ / ₂	35 ⁹ / ₁₆	.78030
1858.....	61 ⁷ / ₈	60 ³ / ₄	61 ⁵ / ₁₆	1.344	1894.....	31 ³ / ₄	27	28 ⁵ / ₁₆	.63479
1859.....	62 ³ / ₄	61 ³ / ₄	62 ¹ / ₁₆	1.360	1895.....	31 ³ / ₈	27 ³ / ₁₆	29 ¹ / ₁₆	.65406
1860.....	62 ³ / ₈	61 ¹ / ₄	61 ¹ / ₁₆	1.352	1896.....	31 ¹ / ₁₆	29 ³ / ₄	30 ¹ / ₁₆	.67565
1861.....	61 ³ / ₈	60 ¹ / ₈	60 ¹ / ₁₆	1.333	1897.....	29 ¹ / ₁₆	23 ³ / ₈	27 ⁹ / ₁₆	.60438
1862.....	62 ¹ / ₄	61	61 ⁷ / ₁₆	1.346	1898.....	28 ³ / ₈	25	26 ¹ / ₁₆	.59010
1863.....	61 ³ / ₄	61	61 ³ / ₈	1.345	1899.....	29	26 ⁵ / ₈	27 ⁷ / ₁₆	.60154
1864.....	62 ³ / ₂	60 ⁵ / ₈	61 ³ / ₈	1.345	1900.....	30 ¹ / ₄	27	28 ⁵ / ₁₆	.62007
1865.....	61 ¹ / ₂	60 ¹ / ₂	61 ¹ / ₁₆	1.338	1901.....	29 ⁹ / ₁₆	24 ¹ / ₁₆	27 ³ / ₁₆	.59595
1866.....	62 ¹ / ₄	60 ³ / ₈	61 ¹ / ₈	1.339	1902.....	26 ¹ / ₁₆	21 ¹ / ₁₆	24 ¹ / ₁₆	.52795
1867.....	61 ¹ / ₁	60 ³ / ₈	60 ⁹ / ₁₆	1.328	1903.....	28 ¹ / ₂	21 ¹ / ₁₆	24 ³ / ₄	.54257
1868.....	61 ¹ / ₈	60 ¹ / ₈	60 ¹ / ₂	1.326					

XVII.—COMMERCIAL RATIO OF SILVER TO GOLD EACH YEAR SINCE 1687.

[NOTE.—From 1687 to 1832 the ratios are taken from Dr. A. Soetbeer; from 1833 to 1878 from Pixley and Abell's tables, and from 1879 to 1896 from daily cablegrams from London to the Bureau of the Mint.]

Year.	Ratio.	Year.	Ratio.	Year.	Ratio.	Year.	Ratio.	Year.	Ratio.	Year.	Ratio.
1687.....	14.94	1724...	15.11	1760...	14.14	1796...	15.65	1832...	15.73	1868...	15.59
1688.....	14.94	1725...	15.11	1761...	14.54	1797...	15.41	1833...	15.93	1869...	15.60
1689.....	15.02	1726...	15.15	1762...	15.27	1798...	15.59	1834...	15.73	1870...	15.55
1690.....	15.02	1727...	15.24	1763...	14.99	1799...	15.74	1835...	15.80	1871...	15.57
1691.....	14.98	1728...	15.11	1764...	14.70	1800...	15.68	1836...	15.72	1872...	15.63
1692.....	14.92	1729...	14.92	1765...	14.83	1801...	15.46	1837...	15.83	1873...	15.93
1693.....	14.83	1730...	14.81	1766...	14.80	1802...	15.26	1838...	15.85	1874...	16.16
1694.....	14.87	1731...	14.94	1767...	14.85	1803...	15.41	1839...	15.62	1875...	16.64
1695.....	15.02	1732...	15.09	1768...	14.80	1804...	15.41	1840...	15.62	1876...	17.75
1696.....	15.00	1733...	15.18	1769...	14.72	1805...	15.79	1841...	15.70	1877...	17.20
1697.....	15.20	1734...	15.39	1770...	14.62	1806...	15.52	1842...	15.87	1878...	17.92
1698.....	15.07	1735...	15.41	1771...	14.66	1807...	15.43	1843...	15.93	1879...	18.39
1699.....	14.94	1736...	15.18	1772...	14.52	1808...	16.08	1844...	15.85	1880...	18.05
1700.....	14.81	1737...	15.02	1773...	14.62	1809...	15.96	1845...	15.92	1881...	18.25
1701.....	15.07	1738...	14.91	1774...	14.62	1810...	15.77	1846...	15.90	1882...	18.20
1702.....	15.52	1739...	14.91	1775...	14.72	1811...	15.53	1847...	15.80	1883...	18.64
1703.....	15.17	1740...	14.94	1776...	14.55	1812...	16.11	1848...	15.85	1884...	18.61
1704.....	15.22	1741...	14.92	1777...	14.54	1813...	16.25	1849...	15.78	1885...	19.41
1705.....	15.11	1742...	14.85	1778...	14.68	1814...	15.04	1850...	15.70	1886...	20.78
1706.....	15.27	1743...	14.85	1779...	14.80	1815...	15.26	1851...	15.46	1887...	21.10
1707.....	15.44	1744...	14.87	1780...	14.72	1816...	15.28	1852...	15.59	1888...	22.00
1708.....	15.41	1745...	14.98	1781...	14.78	1817...	15.11	1853...	15.33	1889...	22.10
1709.....	15.31	1746...	15.13	1782...	14.42	1818...	15.35	1854...	15.33	1890...	19.75
1710.....	15.22	1747...	15.26	1783...	14.48	1819...	15.33	1855...	15.38	1891...	20.92
1711.....	15.29	1748...	15.11	1784...	14.70	1820...	15.62	1856...	15.38	1892...	23.72
1712.....	15.31	1749...	14.80	1785...	14.92	1821...	15.95	1857...	15.27	1893...	26.49
1713.....	15.24	1750...	14.55	1786...	14.96	1822...	15.80	1858...	15.38	1894...	32.56
1714.....	15.13	1751...	14.39	1787...	14.92	1823...	15.84	1859...	15.19	1895...	31.60
1715.....	15.11	1752...	14.54	1788...	14.65	1824...	15.82	1860...	15.29	1896...	30.59
1716.....	15.09	1753...	14.54	1789...	14.75	1825...	15.70	1861...	15.50	1897...	34.20
1717.....	15.13	1754...	14.48	1790...	15.04	1826...	15.76	1862...	15.35	1898...	35.03
1718.....	15.11	1755...	14.68	1791...	15.05	1827...	15.74	1863...	15.37	1899...	34.36
1719.....	15.09	1756...	14.94	1792...	15.17	1828...	15.78	1864...	15.37	1900...	33.33
1720.....	15.04	1757...	14.87	1793...	15.00	1829...	15.78	1865...	15.44	1901...	34.68
1721.....	15.05	1758...	14.85	1794...	15.37	1830...	15.82	1866...	15.43	1902...	39.15
1722.....	15.17	1759...	14.15	1795...	15.55	1831...	15.72	1867...	15.57	1903...	38.10
1723.....	15.20										

XVIII.—IMPORTS OF GOLD AND SILVER, BY CUSTOMS

[Compiled by the Bureau of Statistics,

Customs districts.	GOLD.					
	In ore and base bul- lion.	Bullion, refined.		Coin.		Total gold.
				United States.	Foreign.	
		<i>Ounces.</i>				
Bangor, Me.....		23	\$440	\$200		\$640
Boston and Charlestown, Mass .	\$1,738	84,288	1,591,413	3,135	\$1,008	1,597,294
Hartford, Conn.....				795		795
New York, N. Y.....	816,720	670,908	13,820,562	2,046,952	8,643,250	25,327,484
Passamaquoddy, Me.....	300	9,328	181,562			181,862
Perth Amboy, N. J.....	1,869,808					1,869,808
Philadelphia, Pa.....		4	66			66
Mobile, Ala.....		1,234	17,349	5,705		23,054
New Orleans, La.....		31,053	507,142	20,296		527,438
Pensacola, Fla.....				510	29	539
Arizona.....	357,444	59,631	1,192,613		5,096	1,555,153
Brazos de Santiago, Tex.....						
Corpus Christi, Tex.....	16,953	92,166	1,914,421	64,631	19,067	2,015,072
Paso del Norte, Tex.....	543,460	33,169	663,366			1,206,826
Saluria, Tex.....		39,935	771,577			771,577
Alaska.....	11,449,475					11,449,475
Los Angeles, Cal.....						
Puget Sound, Wash.....	3,530,709	71,184	952,808	82,476		4,565,993
San Diego, Cal.....	6,036	1,089	16,532			22,568
San Francisco, Cal.....	1,148,617	17,869	384,135	51,319	9,441,905	11,025,976
Buffalo Creek, N. Y.....		196	3,920	110,110		114,030
Champlain, N. Y.....	181,820			1,191,652	57,079	1,430,551
Detroit, Mich.....	3,150	201	3,186	75		6,411
Huron, Mich.....		75	1,500			1,500
Niagara, N. Y.....		5,012	80,720	169,200		249,920
North and South Dakota.....	1,272,464			8,800	28,000	1,309,264
Oswegatchie, N. Y.....		15	300			300
Vermont, Vt.....	2,285					2,285
Denver, Col.....	5,980					5,980
Omaha, Nebr.....	5,835					5,835
Total.....	21,212,794	1,117,380	22,103,612	3,755,856	18,195,434	65,267,696

DISTRICTS, DURING THE CALENDAR YEAR 1903.

Department of Commerce and Labor.]

SILVER.					
Contained in ore.	Bullion.		Coin.		Total silver.
			United States.	Foreign.	
	<i>Ounces.</i>				
			\$900		\$900
				\$254	254
			136		136
\$2, 636, 497	2, 044, 772	\$1, 228, 064	83, 525	377, 139	4, 325, 225
7, 722, 823					7, 722, 823
79					79
	4, 062	1, 955	1, 000	39, 067	39, 067
				377, 432	380, 387
				324	324
807, 185	1, 091, 047	556, 096		72, 216	1, 435, 497
				52, 223	52, 223
220, 814	321, 113	168, 564		70, 546	459, 924
2, 291, 276	1, 723, 271	919, 083		680, 625	3, 890, 984
	2, 628, 458	1, 265, 417			1, 265, 417
172					172
671, 451			73, 516		744, 967
				418	418
1, 375, 212	2, 278, 027	1, 368, 541		205, 989	2, 949, 742
	4, 564	2, 744	158, 543		161, 287
			39, 761	3, 906	43, 667
			64, 923		64, 923
	2, 280	900			900
	7, 940	3, 970	40, 908		44, 878
208, 286			55, 911	290	264, 487
	34, 591	20, 958			20, 958
97, 953					97, 953
6, 916					6, 916
16, 038, 664	10, 140, 125	5, 536, 292	519, 123	1, 880, 429	23, 974, 508

XIX.—IMPORTS OF GOLD AND SILVER, BY

[Compiled by the Bureau of Statistics,

Countries.	GOLD.					
	In ore and base bul- lion.	Bullion, refined.		Coin.		Total gold.
				United States.	Foreign.	
		<i>Ounces.</i>				
Azores and Madeira Islands.				\$17, 517		\$17, 517
France					\$4, 773, 149	4, 773, 149
Germany		1	\$14			14
Portugal				3, 490		3, 490
United Kingdom		703, 117	14, 358, 463	1, 653, 162	2, 833, 542	18, 845, 167
British Honduras		312	6, 219	25, 754		31, 973
Dominion of Canada:						
Nova Scotia, New Bruns- wick, etc.	\$300	15, 506	290, 448	3, 335	227	294, 310
Quebec, Ontario, etc.	11, 642, 540	5, 499	89, 626	1, 479, 837	85, 079	13, 297, 082
British Columbia	5, 203, 250	69, 459	932, 084	82, 476		6, 217, 810
Central American States:						
Costa Rica		3, 446	71, 784		3, 000	74, 784
Guatemala				140		140
Honduras	33, 997	3, 142	64, 082			98, 079
Nicaragua		33, 003	540, 264	11, 600		551, 864
Salvador		1, 659	34, 787	233	500	35, 520
Mexico	4, 247, 018	249, 844	5, 062, 073	96, 170	25, 013	9, 430, 274
West Indies:						
British	3, 106	2, 321	47, 822	108, 198	27, 247	186, 373
Cuba				10, 510	932, 612	943, 122
Danish		106	2, 176	22, 433	826	25, 435
Dutch		193	3, 980	56, 756	6, 046	66, 782
Haiti				66, 785	8, 600	75, 385
Santo Domingo	750	176	3, 625	2, 006	3, 006	9, 387
Brazil	100	100	2, 009			2, 109
Colombia	1, 763	18, 732	385, 093	47, 341	4, 962	439, 159
Chile	6, 364	386	7, 939			14, 303
Ecuador	41, 680	6, 406	132, 878		48, 662	223, 220
Guiana:						
British					900	900
Dutch				300		300
Peru	12, 745			100	150	12, 995
Venezuela		888	18, 266	45, 755		64, 021
Chinese Empire				18, 695		18, 695
Hongkong				2, 178	8	2, 186
Japan		339	7, 302		2, 142, 155	2, 149, 457
Korea	19, 181	2, 745	42, 678			61, 859
British Australasia				1, 085	7, 299, 750	7, 300, 835
French Oceania						
Total	21, 212, 794	1, 117, 380	22, 103, 612	3, 755, 856	18, 195, 434	65, 267, 696

COUNTRIES, DURING THE CALENDAR YEAR 1903.

Department of Commerce and Labor.]

SILVER.					
Contained in ore	Bullion.		Coin.		Total silver.
			United States.	Foreign.	
	<i>Ounces.</i>				
			\$738		\$738
			844		844
			59		59
			136	\$43,075	43,211
				245,521	245,521
	63	\$38	1,400		1,438
\$19,319	49,375	28,572	350,568	4,196	402,655
1,894,007	80,400	50,441	82,994		2,027,442
	6,301	3,781			3,781
				29,460	29,460
	419,613	250,060	1,000	166,810	417,870
			392	1,181	1,573
19	8,478	5,207	68	9,802	15,096
13,935,726	9,554,042	5,185,081		1,325,217	20,446,024
	4,766	2,860	13,169	3,201	19,230
			19,457	346	19,803
	33	20	5,186	643	5,849
			1,929	22	1,951
			6,777	5,960	12,737
	3,217	1,930	30,687	36,261	68,878
122,596	8,602	5,161			127,757
66,971	1,525	915			67,886
			1,409		1,409
				26	26
	3,710	2,226	2,310	4	2,314
					2,226
26					26
				8,704	8,704
16,038,664	10,140,125	5,536,292	519,123	1,880,429	23,974,508

XX.—EXPORTS, BY CUSTOMS DISTRICTS AND COUNTRIES, OF FOREIGN GOLD

[Compiled by the Bureau of Statistics,

Customs distriets and countries.	GOLD.				
	In ore and base bul- lion.	Bullion, refined.		Coin.	Total gold.
CUSTOMS DISTRICTS.		Ounces.			
Baltimore, Md.....					
New York, N. Y.....				\$1,313,375	\$1,313,375
Perth Amboy, N. J.....					
Porto Rico.....				8,808	8,808
Mobile, Ala.....					
New Orleans, La.....					
Corpus Christi, Tex.....					
Alaska.....	\$3,820				3,820
Hawaii.....				9,350	9,350
San Francisco, Cal.....					
Champlain, N. Y.....				848,744	848,744
Detroit, Mich.....					
Vermont, Vt.....		10	\$196	14,850	15,046
Total.....	3,820	10	196	2,195,127	2,199,143
COUNTRIES.					
France.....				14,000	14,000
Germany.....					
Italy.....					
Spain.....				8,808	8,808
United Kingdom.....					
British Honduras.....					
Dominion of Canada—Quebec, Ontario, etc.....	3,820	10	196	863,594	867,610
Central American States:					
Nicaragua.....					
Salvador.....					
Mexico.....					
West Indies:					
British.....					
Cuba.....				1,295,055	1,295,055
Dutch.....				300	300
Brazil.....				3,900	3,900
Colombia.....					
Guiana—British.....				120	120
Venczuela.....					
British China.....					
Hongkong.....					
British Australasia.....				4,500	4,500
British Oceania.....					
German Oceania.....				4,850	4,850
Philippine Islands.....					
Total.....	3,820	10	196	2,195,127	2,199,143

AND SILVER FROM THE UNITED STATES DURING THE CALENDAR YEAR 1903.

Department of Commerce and Labor.]

SILVER.				
Contained in ore.	Bullion.		Coin.	Total silver.
	Ounces.			
			\$901	\$901
			805,908	805,908
		\$5,514,782		5,514,782
			465	465
			6,928	6,928
			72,587	72,587
			4,180	4,180
			3,268	3,268
			629,618	629,618
			50,088	50,088
			3,108	3,108
			60,114	60,114
		5,514,782	1,637,165	7,151,947
		940,667		940,667
			2,000	2,000
			7,040	7,040
			465	465
		4,574,115	472,700	5,046,815
			4,300	4,300
			113,310	113,310
			79,615	79,615
			320	320
			45,516	45,516
			31,280	31,280
			5,000	5,000
			3,168	3,168
			18,459	18,459
			241,426	241,426
			468	468
			564,669	564,669
			4,149	4,149
			43,280	43,280
		5,514,782	1,637,165	7,151,947

XXI.—EXPORTS, BY CUSTOMS DISTRICTS AND COUNTRIES, OF DOMESTIC GOLD

[Compiled by the Bureau of Statistics,

Customs districts and countries.	GOLD.				
	In ore and base bul- lion.	Bullion.			
		United States mint or assay office bars.		Other.	
CUSTOMS DISTRICTS.		Ounces.		Ounces.	
Bangor, Me.					
Boston and Charlestown, Mass.					
New York, N. Y.	\$6,750	1,145,837	\$23,352,516		
Mobile, Ala.					
New Orleans, La.					
Corpus Christi, Tex.					
Saluria, Tex.					
Alaska.	250,705				
Hawaii.					
Puget Sound, Wash.	320,077			206	\$3,624
San Francisco, Cal.				56,981	1,206,597
Buffalo Creek, N. Y.				2,107	43,442
Champlain, N. Y.					
Memphremagog, Vt.					
Niagara, N. Y.				1,242	24,611
Oswegatchie, N. Y.					
Vermont, Vt.	122			131	2,652
Total.	577,654	1,145,837	23,352,516	60,667	1,280,926
COUNTRIES.					
France.		996,395	20,275,981		
Germany.	6,750	149,442	3,076,535		
United Kingdom.					
British Honduras.					
Dominion of Canada:					
Nova Scotia, New Brunswick, etc.					
Quebec, Ontario, etc.,	247,141			3,480	70,705
British Columbia.	323,763			206	3,624
Central American States:					
Costa Rica.					
Guatemala.					
Nicaragua.					
Salvador.					
Mexico.					
West Indies:					
British.					
Cuba.					
Dutch.					
Haiti.					
Santo Domingo.					
Argentina.					
Colombia.					
Guiana:					
British.					
Dutch.					
Uruguay.					
Venezuela.					
Chinese Empire.					
Hongkong.				183	3,937
Japan.				56,798	1,202,660
French Oceania.					
German Oceania.					
Hawaii.					
Philippine Islands.					
Tutuila.					
Total.	577,654	1,145,837	23,352,516	60,667	1,280,926

AND SILVER FROM THE UNITED STATES DURING THE CALENDAR YEAR 1903.

Department of Commerce and Labor.]

GOLD.		SILVER.				
Coin.	Total gold.	In ore and base bullion.	Bullion.		Coin.	Total silver.
			Ounces.			
			88	\$53		\$53
					\$15,000	15,000
\$8,872,171	\$32,231,437	\$4,161	58,959,073	31,346,726	158,242	31,509,129
5,000	5,000					
31,000	31,000				15,500	15,500
2,400	2,400					
30	30				1	1
	250,705				1,200	1,200
16,120	16,120					
46,542	370,243	75,086	888,080	446,652	28,568	550,306
591,571	1,798,168		2,303,989	1,207,400		1,207,400
231	43,673		169,238	101,549	3,115	104,664
5,095,890	5,095,890				5,592	5,592
			565	333		333
1,803,640	1,828,251		22,346	11,486	1,200	12,686
			403	236		236
472,000	174,774		68,819	36,295		36,295
16,936,595	42,147,691	79,247	62,412,601	33,150,730	228,418	33,458,395
	20,275,981		5,719,108	3,108,781		3,108,781
	3,083,285	900			1,550	2,450
		3,261	53,235,099	28,235,315		28,238,576
14,000	14,000					
			88	53		53
7,371,761	7,689,607		261,371	149,899	10,607	160,506
46,542	373,929	75,086			29,068	104,154
15,470	15,470				15,500	15,500
3,080	3,080					
7,000	7,000					
15,122	15,122					
90,727	90,727				3,001	3,001
27,709	27,709		1,350	804	28,227	29,031
195,000	195,000				2,500	2,500
7,157	7,157				750	750
720,711	720,711				2,500	2,500
148,942	148,942				129,500	129,500
6,850,000	6,850,000					
8,200	8,200				4,900	4,900
			3,516	1,826	315	2,141
7,000	7,000					
500,000	500,000					
318,655	318,655					
1,200	1,200					
89,314	93,251		3,192,069	1,654,052		1,654,052
444,000	1,646,660					
2,050	2,050					
955	955					
50,000	50,000					
2,000	2,000					
16,936,595	42,147,691	79,247	62,412,601	33,150,730	228,418	33,458,395

XXII.—SUMMARY OF IMPORTS AND EXPORTS OF GOLD AND SILVER DURING THE
CALENDAR YEAR 1903.

[Compiled by the Bureau of Statistics, Department of Commerce and Labor.]

Classification.	Imports.	Exports.		
		Domestic.	Foreign.	Total.
Gold:				
Ore.....	\$21,212,794	\$577,654	\$3,820	\$581,474
Bullion.....	22,103,612	24,633,442	196	24,633,638
United States coin.....	3,755,856	16,936,595	.....	16,936,595
Foreign coin.....	18,195,434	.....	2,195,127	2,195,127
Total.....	65,267,696	42,147,691	2,199,143	44,346,834
Silver:				
Ore.....	16,038,664	79,247	.....	79,247
Bullion.....	5,536,292	33,150,730	5,514,782	38,665,512
United States coin.....	519,123	228,418	.....	228,418
Foreign coin.....	1,880,429	.....	1,637,165	1,637,165
Total.....	23,974,508	33,458,395	7,151,947	40,610,342

XXIII.—IMPORTS AND EXPORTS OF THE PRECIOUS METALS OF THE PRINCIPAL COUNTRIES OF THE WORLD.

TABLE SHOWING THE VALUE OF THE GOLD AND SILVER COIN AND BULLION IMPORTED INTO AND EXPORTED FROM THE PRINCIPAL COUNTRIES OF THE WORLD, ALSO THE EXCESS OF IMPORTS OVER EXPORTS OR EXPORTS OVER IMPORTS, FOR A SERIES OF YEARS.

UNITED STATES.

Value of GOLD COIN and BULLION imported into and exported from the United States, fiscal years since 1825.

Year ending—	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
September 30—				
1825	\$529, 277	\$315, 672	\$213, 605	.....
1826	678, 740	1, 056, 088	.....	\$377, 348
1827	1, 110, 448	1, 872, 489	.....	762, 041
1828	808, 220	1, 635, 084	.....	826, 864
1829	816, 666	1, 573, 258	.....	756, 592
1830	821, 146	1, 422, 664	.....	601, 518
1831	932, 029	2, 979, 529	.....	2, 047, 500
1832	716, 686	2, 049, 406	.....	1, 332, 720
1833	611, 852	889, 505	.....	277, 653
1834	3, 766, 172	690, 180	3, 075, 992	.....
1835	2, 325, 196	1, 355, 280	969, 916	.....
1836	7, 231, 862	647, 455	6, 584, 407	.....
1837	2, 431, 814	3, 213, 735	.....	781, 921
1838	11, 674, 883	1, 213, 204	10, 461, 679	.....
1839	1, 164, 580	4, 800, 668	.....	3, 636, 088
1840	3, 085, 157	3, 703, 373	.....	618, 216
1841	1, 269, 449	3, 589, 869	.....	2, 320, 420
1842	757, 294	2, 304, 756	.....	1, 547, 462
June 30—				
1843 <i>a</i>	17, 066, 437	407, 687	16, 658, 750	.....
1844	1, 613, 304	1, 366, 521	246, 783	.....
1845	818, 850	3, 055, 425	.....	2, 236, 575
1846	910, 413	2, 053, 199	.....	1, 142, 786
1847	21, 574, 931	1, 037, 921	20, 537, 010	.....
1848	3, 408, 755	11, 071, 197	.....	7, 662, 442
1849	4, 068, 647	1, 972, 233	2, 096, 414	.....
1850	1, 776, 706	4, 560, 627	.....	2, 783, 921
1851	3, 569, 090	22, 836, 913	.....	19, 267, 823
1852	3, 658, 059	40, 073, 979	.....	36, 415, 920
1853	2, 427, 356	25, 442, 858	.....	23, 015, 502
1854	3, 212, 719	40, 554, 464	.....	37, 341, 745
1855	1, 092, 802	55, 109, 215	.....	54, 016, 413
1856	990, 305	45, 000, 977	.....	44, 010, 672
1857	6, 654, 636	65, 232, 653	.....	58, 578, 017
1858	11, 566, 068	50, 002, 804	.....	38, 436, 736
1859	2, 125, 397	61, 108, 053	.....	58, 982, 656
1860	2, 508, 786	58, 446, 039	.....	55, 937, 253
1861	42, 291, 930	27, 423, 973	14, 867, 957	.....
1862	13, 907, 011	35, 439, 903	.....	21, 532, 892
1863	5, 530, 538	62, 162, 838	.....	56, 632, 300
1864	11, 176, 769	100, 661, 634	.....	89, 484, 865
1865	6, 498, 228	58, 381, 033	.....	51, 882, 805
1866	8, 196, 261	71, 197, 309	.....	63, 001, 048
1867	17, 024, 866	39, 026, 627	.....	22, 001, 761
1868	8, 737, 443	73, 396, 344	.....	64, 658, 901
1869	14, 132, 568	36, 003, 498	.....	21, 870, 930
1870	12, 056, 950	33, 635, 962	.....	21, 579, 012
1871	6, 883, 561	66, 686, 208	.....	59, 802, 647
1872	8, 717, 458	49, 548, 760	.....	40, 831, 302
1873	8, 682, 447	44, 856, 715	.....	36, 174, 268
1874	19, 503, 137	34, 042, 420	.....	14, 539, 283
1875	13, 696, 793	66, 980, 977	.....	53, 284, 184
1876	7, 992, 709	31, 177, 050	.....	23, 184, 341
1877	26, 246, 234	26, 590, 374	.....	344, 140
1878	13, 330, 215	9, 204, 455	4, 125, 760	.....
1879	5, 624, 948	4, 587, 614	1, 037, 334	.....
1880	80, 758, 396	3, 639, 025	77, 119, 371	.....
1881	100, 031, 259	2, 565, 132	97, 466, 127	.....
1882	34, 377, 054	32, 587, 880	1, 789, 174	.....
1883	17, 734, 149	11, 600, 888	6, 133, 261	.....
1884	22, 831, 317	41, 081, 957	.....	18, 250, 640
Amount carried forward.....	635, 736, 973	1, 487, 123, 556	263, 383, 540	1, 114, 770, 123

a Nine months.

Value of GOLD COIN and BULLION imported into and exported from the United States, fiscal years since 1825—Continued.

Year ending—	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
Amount brought forward.....	\$635,736,973	\$1,487,123,556	\$263,383,540	\$1,114,770,123
June 30—				
1885	26,691,696	8,477,892	18,213,804	
1886	20,743,349	42,952,191		22,208,842
1887	42,910,601	9,701,187	33,209,414	
1888	43,934,317	18,376,234	25,558,083	
1889	10,372,145	60,033,246		49,661,101
1890	13,097,146	17,350,193		4,253,047
1891	18,516,112	86,462,880		67,946,768
1892	50,162,879	50,305,533		142,654
1893	22,069,380	108,966,655		86,897,275
1894	72,989,563	77,162,228		4,172,665
1895	36,384,760	66,502,136		30,117,376
1896	33,507,853	112,412,465		78,904,612
1897	85,021,992	40,412,151	44,609,841	
1898	120,402,195	15,533,719	104,868,476	
1899	88,978,882	37,519,783	51,429,099	
1900	44,573,184	48,266,759		3,693,575
1901	66,051,187	53,185,177	12,866,010	
1902	52,021,254	48,568,950	3,452,304	
1903	44,982,027	47,090,595		2,108,568
1904	99,055,368	81,459,986	17,595,382	
Total.....	1,628,202,863	2,517,893,516	575,185,953	1,464,876,606

NOTE.—There were no exports of domestic gold previous to 1826, the exports of domestic gold not being separately stated from 1826 to 1861, and in 1863 were included in the exports of domestic silver by the Bureau of Statistics (Statistical Abstracts, 1879-1891). In the Abstracts for 1892-93 this item is omitted entirely, while in the Abstracts for 1894-95 it is included in the gold exports, with the following note appended: "Gold and silver can not be separately stated prior to 1864, but it is probable that the greater portion of the exports was gold."

Value of SILVER COIN and BULLION imported into and exported from the United States, fiscal years since 1821.

Year ending—	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
September 30—				
1821	\$8,064,890	\$10,478,059		\$2,413,169
1822	3,369,846	10,810,180		7,440,334
1823	5,097,896	6,372,987		1,275,091
1824	8,378,970	7,014,552	\$1,364,418	
1825	5,621,488	8,481,383		2,859,895
1826	6,202,226	3,648,475	2,553,751	
1827	7,040,682	6,142,391	898,291	
1828	6,681,521	6,608,392	73,129	
1829	6,586,946	3,350,762	3,236,184	
1830	7,334,818	756,109	6,578,709	
1831	6,373,916	6,035,402	338,514	
1832	5,190,818	3,606,934	1,583,884	
1833	6,458,516	1,722,196	4,736,320	
1834	14,145,460	1,386,578	12,758,882	
1835	10,806,251	5,122,495	5,683,756	
1836	6,169,019	3,676,881	2,492,138	
1837	8,084,600	2,762,514	5,322,086	
1838	6,072,233	2,294,842	3,777,391	
1839	4,430,596	3,976,075	454,521	
1840	5,797,656	4,713,641	1,084,015	
1841	3,719,184	6,444,463		2,725,279
1842	3,329,722	2,508,783	820,939	
June 30—				
1843 ^a	5,253,898	1,113,104	4,140,794	
1844	4,217,125	4,087,693	129,432	
1845	3,251,392	5,551,070		2,299,678
1846	2,867,319	1,852,069	1,015,250	
1847	2,546,358	869,103	1,677,255	
1848	2,951,529	4,770,419		1,818,890
1849	2,582,593	3,432,415		849,822
1850	2,852,086	2,962,367		110,281
1851	1,884,413	6,635,839		4,751,426
1852	1,846,985	2,600,156		753,171
1853	1,774,026	2,044,017		269,991
1854	3,726,623	727,040	2,999,583	
1855	2,567,010	1,138,128	1,428,882	
1856	3,217,327	744,508	2,472,819	
1857	5,807,163	3,904,269	1,902,894	
1858	7,708,428	2,630,343	5,078,085	
Amount carried forward.....	200,011,529	152,976,634	74,601,922	27,567,027

^a Nine months.

Value of SILVER COIN and BULLION imported into and exported from the United States, fiscal years since 1821—Continued.

Year ending.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
Amount brought forward.....	\$200,011,529	\$152,976,634	\$74,601,922	\$27,567,027
June 30—				
1859	5,309,392	2,779,358	2,530,034	.....
1860	6,041,349	8,100,200	.....	2,058,851
1861	4,047,681	2,367,107	1,680,574	.....
1862	2,508,041	1,447,737	1,060,304	.....
1863	4,053,567	1,993,773	2,059,794	.....
1864	1,938,843	4,734,907	.....	2,796,064
1865	3,311,844	9,262,193	.....	5,950,349
1866	2,503,831	14,846,762	.....	12,342,931
1867	5,045,609	21,841,745	.....	16,796,136
1868	5,450,925	21,387,753	.....	15,936,833
1869	5,675,308	21,134,882	.....	15,459,574
1870	14,362,229	24,519,704	.....	10,157,475
1871	14,386,463	31,755,780	.....	17,369,317
1872	5,026,231	30,328,774	.....	25,302,543
1873	12,798,490	39,751,859	.....	26,953,369
1874	8,951,769	32,587,985	.....	23,636,216
1875	7,203,924	25,151,165	.....	17,947,241
1876	7,943,972	25,329,252	.....	17,385,280
1877	14,528,180	29,571,863	.....	15,043,683
1878	16,491,099	24,535,670	.....	8,044,571
1879	14,671,052	20,409,827	.....	5,738,775
1880	12,275,914	13,503,894	.....	1,227,980
1881	10,544,238	16,841,715	.....	6,297,477
1882	8,095,336	16,829,599	.....	8,734,263
1883	10,755,242	20,219,445	.....	9,464,203
1884	14,594,945	26,051,426	.....	11,456,481
1885	16,550,627	33,753,633	.....	17,203,006
1886	17,850,307	29,511,219	.....	11,660,912
1887	17,260,191	26,296,504	.....	9,036,313
1888	20,514,232	28,146,510	.....	7,632,278
1889	24,682,380	36,716,783	.....	12,034,403
1890	27,524,147	36,069,602	.....	8,545,455
1891	26,278,916	23,533,551	2,745,365	.....
1892	28,764,734	33,800,562	.....	5,035,828
1893	34,293,999	41,947,812	.....	7,653,813
1894	19,965,713	51,007,072	.....	31,041,359
1895	20,211,179	47,842,968	.....	27,631,789
1896	27,314,015	60,576,273	.....	33,262,258
1897	30,588,438	63,225,273	.....	32,636,835
1898	30,929,451	55,751,597	.....	24,822,146
1899	31,120,518	56,655,335	.....	25,534,817
1900	35,256,302	56,712,275	.....	21,455,973
1901	36,386,521	64,285,180	.....	27,898,659
1902	28,232,254	49,732,390	.....	21,500,136
1903	24,163,491	44,250,259	.....	20,086,768
1904	27,768,814	49,497,702	.....	21,728,888
Total.....	944,183,232	1,529,573,514	84,677,993	670,068,275

AUSTRALASIA.

Value of GOLD COIN and BULLION imported into and exported from Australasia since 1851.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1851		\$4,365,251		\$4,365,251
1852		46,105,221		46,105,221
1853		50,640,799		50,640,799
1854		49,925,424		49,925,424
1855		53,857,556		53,857,556
1856		61,050,243		61,050,243
1857		55,137,445		55,137,445
1858		55,575,430		55,575,430
1859		56,650,927		56,650,927
1860		49,575,036		49,575,036
1861		53,127,581		53,127,581
1862		50,884,124		50,884,124
1863		55,813,889		55,813,889
1864		43,925,029		43,925,029
1865		46,397,211		46,397,211
1866		46,805,997		46,805,997
1867		42,815,467		42,815,467
1868		45,506,642		45,506,642
1869		50,528,870		50,528,870
1870		40,090,227		40,090,227
1871		37,009,733		37,009,733
1872		36,970,801		36,970,801
1873		45,024,858		45,024,858
1874		36,615,546		36,615,546
1875		33,423,122		33,423,122
1876		27,247,534		27,247,534
1877		36,527,949		36,527,949
1878		28,542,023		28,542,023
1879		13,193,081		13,193,081
1880		22,059,845		22,059,845
1881		33,014,336		33,014,336
1882		26,931,211		26,931,211
1883		24,765,619		24,765,619
1884		5,732,737		5,732,737
1885		25,612,390		25,612,390
1886		16,429,304		16,429,304
1887		9,251,217		9,251,217
1888		16,346,574		16,346,574
1889		25,821,649		25,821,649
1890		27,364,330		27,364,330
1891		31,004,472		31,004,472
1892		20,148,254		20,148,254
1893	\$15,216,226	24,431,771		9,215,545
1894		26,106,806		26,106,806
1895		25,300,685		25,300,685
1896		27,828,360		27,828,360
1897	26,848,485	85,620,732		58,772,247
1898		62,839,635		62,839,635
1899		65,326,524		65,326,524
Total	42,064,711	1,855,269,467		1,813,204,756

GREAT BRITAIN AND IRELAND.

Value of GOLD COIN and BULLION imported into and exported from Great Britain and Ireland since 1858.

Year.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1858	\$110,922,748	\$61,157,500	\$49,765,248	.....
1859	108,511,747	87,991,863	20,519,884	.....
1860	61,243,365	76,119,739	.....	\$14,876,374
1861	59,195,799	59,071,387	124,412	.....
1862	96,861,375	77,922,217	18,939,158	.....
1863	93,157,779	74,473,407	18,684,372	.....
1864	82,248,478	64,625,850	17,622,628	.....
1865	70,494,026	41,332,800	29,161,226	.....
1866	114,409,668	62,009,230	52,400,438	.....
1867	76,891,474	38,393,911	38,497,563	.....
1868	83,393,205	61,845,954	21,547,251	.....
1869	67,015,657	41,237,256	25,778,401	.....
1870	91,522,942	48,730,800	42,792,142	.....
1871	105,208,494	100,728,155	4,480,339	.....
1872	89,881,539	96,108,100	.....	6,226,561
1873	100,304,234	92,810,092	7,494,142	.....
1874	87,991,279	51,787,522	36,203,757	.....
1875	112,614,868	90,751,932	21,862,936	.....
1876	114,245,832	80,373,888	33,871,944	.....
1877	75,148,420	99,088,685	.....	23,940,265
1878	101,570,717	72,844,239	28,726,478	.....
1879	65,058,657	85,547,318	.....	20,488,661
1880	46,012,081	57,564,962	.....	11,552,881
1881	48,484,969	75,425,090	.....	26,940,121
1882	69,963,524	58,513,842	11,449,682	.....
1883	37,743,601	34,510,128	3,233,473	.....
1884	52,287,662	58,460,481	.....	6,172,819
1885	65,097,034	58,061,325	7,035,709	.....
1886	65,173,415	67,078,405	.....	1,904,990
1887	48,447,594	45,373,368	3,074,226	.....
1888	76,830,297	72,725,672	4,104,625	.....
1889	87,178,671	70,346,805	16,831,866	.....
1890	114,693,910	69,623,497	45,070,413	.....
1891	147,472,002	117,634,800	29,837,202	.....
1892	103,413,125	75,187,425	28,225,700	.....
1893	120,978,231	94,959,241	26,018,990	.....
1894	134,590,674	76,298,306	58,292,368	.....
1895	176,197,803	104,094,683	72,103,120	.....
1896	119,664,232	146,628,706	.....	26,964,474
1897	150,648,060	149,970,551	677,509	.....
1898	230,260,646	178,101,062	52,159,584	.....
1899	159,544,991	104,907,058	54,637,933	.....
1900	129,379,007	89,531,234	39,847,773	.....
1901	104,060,588	67,961,962	36,098,626	.....
1902	108,450,279	74,988,327	33,461,952	.....
1903	143,499,507	135,125,731	8,373,776	.....
Total.....	4,507,964,206	3,648,024,506	999,006,846	139,067,146

Value of SILVER COIN and BULLION imported into and exported from Great Britain and Ireland since 1858.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1858	\$32,605,861	\$34,366,425	.....	\$1,760,564
1859	71,890,166	85,687,697	.....	13,797,531
1860	50,580,026	48,145,209	\$2,434,817	.....
1861	32,036,695	46,588,348	.....	14,551,653
1862	57,194,865	64,793,691	.....	7,598,826
1863	52,987,080	54,702,725	.....	1,715,645
1864	52,691,177	47,947,488	4,743,689	.....
1865	33,951,823	32,114,968	1,836,855	.....
1866	52,448,694	43,295,070	9,153,624	.....
1867	39,033,651	31,318,297	7,715,354	.....
1868	37,551,948	36,555,717	996,231	.....
1869	32,752,416	38,463,984	.....	5,711,568
1870	51,823,066	43,341,871	8,481,195	.....
1871	80,403,841	63,568,150	16,835,691	.....
1872	54,205,851	51,521,368	2,684,483	.....
1873	63,206,423	47,828,278	15,378,145	.....
1874	59,849,039	59,429,489	419,550	.....
1875	49,268,227	43,699,934	5,568,293	.....
1876	66,078,646	63,013,067	3,065,579	.....
1877	105,655,676	94,588,861	11,066,815	.....
1878	56,215,594	57,025,837	.....	810,243
1879	52,494,269	53,561,156	.....	1,066,887
1880	33,087,441	34,360,804	.....	1,273,363
1881	33,585,673	34,084,878	.....	499,205
1882	44,980,695	43,630,382	1,350,313	.....
1883	46,076,032	45,369,630	706,402	.....
1884	46,881,403	48,598,733	.....	1,717,330
1885	45,908,639	47,946,155	.....	2,037,516
1886	36,360,731	35,154,131	1,206,600	.....
1887	37,853,295	37,994,732	.....	141,437
1888	30,240,139	37,060,480	.....	6,820,341
1889	44,700,749	51,907,607	.....	7,206,858
1890	50,541,810	52,866,658	.....	2,324,848
1891	63,663,246	64,993,889	.....	1,330,643
1892	60,222,938	68,495,988	.....	8,273,050
1893	72,912,463	68,219,872	4,692,591	.....
1894	65,431,903	60,979,318	4,452,585	.....
1895	60,428,333	52,209,705	8,218,628	.....
1896	76,043,209	74,182,191	1,861,018	.....
1897	94,711,400	91,816,411	2,894,989	.....
1898	77,006,055	76,984,253	21,802	.....
1899	66,965,858	68,368,714	.....	1,402,856
1900	69,849,780	66,060,691	3,789,086	.....
1901	61,141,061	58,640,532	2,500,529	.....
1902	52,757,722	52,149,988	607,734	.....
1903	56,595,962	55,802,822	793,140	.....
Total	2,512,871,571	2,469,436,197	123,475,738	80,040,364

NOTE.—The imports and exports of gold and silver were not registered at the custom-house before 1858.

INDIA.

Value of GOLD COIN and BULLION imported into and exported from India since 1835.

Fiscal years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1835-36	\$1,622,486	\$16,940	\$1,605,546	
1836-37	2,052,174	9,587	2,042,587	
1837-38	2,251,184	154,355	2,096,829	
1838-39	1,297,073	37,015	1,260,058	
1839-40	1,125,247	22,288	1,102,959	
1840-41	671,012	2,783	668,229	
1841-42	809,591	3,587	806,004	
1842-43	1,033,844	6,229	1,027,615	
1843-44	1,980,850	2,506	1,978,344	
1844-45	3,501,218	45,516	3,455,702	
1845-46	2,686,142	36,450	2,649,692	
1846-47	4,150,341	28,664	4,121,677	
1847-48	5,103,878	47,020	5,056,858	
1848-49	6,821,607	257,097	6,564,510	
1849-50	5,642,940	207,094	5,435,846	
1850-51	5,622,316	9,811	5,612,505	
1851-52	6,515,163	346,324	6,168,839	
1852-53	6,526,532	821,529	5,705,003	
1853-54	5,249,532	84,020	5,165,512	
1854-55	4,295,762	736,939	3,558,823	
1855-56	12,206,900	10,259	12,196,641	
1856-57	10,589,514	412,621	10,176,893	
1857-58	13,772,604	228,779	13,543,825	
1858-59	21,594,310	52,977	21,541,333	
1859-60	20,867,732	18,508	20,849,224	
1860-61	20,645,839	48,042	20,597,797	
1861-62	25,257,767	29,233	25,228,534	
1862-63	33,489,045	162,590	33,326,455	
1863-64	43,434,417	131,912	43,302,505	
1864-65	48,055,743	170,659	47,885,084	
1865-66	31,013,698	3,155,525	27,858,173	
1866-67	22,295,723	3,597,143	18,698,580	
1867-68	23,242,144	810,062	22,432,082	
1868-69	25,193,763	85,768	25,107,995	
1869-70	27,692,321	578,283	27,114,038	
1870-71	13,541,486	2,435,454	11,106,032	
1871-72	17,391,790	41,043	17,350,747	
1872-73	12,761,768	384,496	12,377,272	
1873-74	8,023,918	1,295,311	6,728,607	
1874-75	10,167,256	1,049,709	9,117,547	
1875-76	8,936,648	1,417,358	7,519,290	
1876-77	7,025,824	6,016,755	1,009,069	
1877-78	7,683,847	5,405,698	2,278,149	
1878-79	7,119,933	11,481,159		\$4,361,226
1879-80	9,978,237	1,459,398	8,518,839	
1880-81	17,870,070	82,044	17,788,026	
1881-82	23,633,531	60,383	23,573,148	
1882-83	24,795,464	799,390	23,996,074	
1883-84	26,617,111	33,831	26,583,280	
1884-85	23,252,973	516,997	22,735,976	
1885-86	15,044,974	1,599,152	13,445,822	
1886-87	13,789,410	3,194,823	10,594,587	
1887-88	15,748,251	1,185,343	14,562,908	
1888-89	15,179,040	1,485,031	13,694,009	
1889-90	24,678,152	2,217,780	22,460,372	
1890-91	30,794,441	4,095,891	26,698,547	
1891-92	19,511,366	8,077,234	11,434,132	
1892-93	8,440,334	21,764,013		13,323,679
1893-94	10,207,343	8,127,141	2,080,202	
1894-95	5,697,372	21,833,333		16,135,961
1895-96	16,314,949	8,120,760	8,194,189	
1896-97	14,569,385	7,137,257	7,432,128	
1897-98	23,620,284	7,697,146	15,923,138	
1898-99	28,655,136	7,580,080	21,075,056	
1899-1900	37,143,707	6,515,256	30,628,451	
1900-1901	38,601,142	35,868,975	2,732,167	
1901-1902	26,952,409	20,666,059	6,286,350	
1902-1903	42,800,439	14,365,265	28,435,174	
1903-1904	65,363,404	33,144,789	32,218,615	
Total	1,120,221,806	259,522,472	894,520,200	33,820,866

NOTE.—Rupee calculated at coining rate, \$0.4737, 1835-36 to 1892-93. Rupee calculated at 16 pence = \$0.32443328 (India, act of June 26, 1893) from 1893-94. The Indian coinage act, September 15, 1899, made the sovereign equal to 15 rupees. Rupee = \$0.32444.

Value of SILVER COIN and BULLION imported into and exported from India since 1835.

Fiscal years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1835-36	\$8,923,570	\$1,079,278	\$7,844,292	
1836-37	8,014,347	1,498,677	6,515,670	
1837-38	10,779,395	1,207,261	9,572,134	
1838-39	13,871,374	998,849	12,872,525	
1839-40	9,426,517	1,394,500	8,032,017	
1840-41	8,309,466	1,488,239	6,821,227	
1841-42	8,166,405	1,921,576	6,244,829	
1842-43	15,743,181	1,375,107	14,368,074	
1843-44	23,085,410	5,101,542	17,983,868	
1844-45	15,456,238	5,778,905	9,677,333	
1845-46	9,252,954	5,006,981	4,245,973	
1846-47	10,156,785	3,449,536	6,707,249	
1847-48	4,487,813	6,892,794		\$2,404,981
1848-49	13,619,523	12,091,909	1,527,614	
1849-50	10,880,481	4,682,473	6,198,008	
1850-51	12,927,847	2,624,372	10,303,475	
1851-52	18,070,677	4,126,417	13,944,260	
1852-53	26,718,190	4,287,840	22,430,350	
1853-54	18,349,834	7,128,931	11,220,903	
1854-55	5,572,809	5,428,761	144,048	
1855-56	42,790,127	2,912,201	39,877,926	
1856-57	59,554,743	5,666,786	53,887,957	
1857-58	63,193,118	3,729,608	59,463,510	
1858-59	40,779,771	3,169,795	37,609,976	
1859-60	58,733,428	4,483,813	54,249,615	
1860-61	31,313,981	5,385,269	25,928,712	
1861-62	47,504,340	3,285,374	44,218,966	
1862-63	66,317,742	5,242,194	61,075,548	
1863-64	68,312,034	6,036,407	62,275,627	
1864-65	55,907,812	6,859,332	49,048,480	
1865-66	98,227,383	7,376,154	90,851,229	
1866-67	42,121,504	8,236,064	33,885,440	
1867-68	34,062,580	6,839,866	27,222,714	
1868-69	48,562,804	6,706,037	41,856,767	
1869-70	40,218,703	4,594,463	35,624,240	
1870-71	12,955,596	8,371,840	4,583,756	
1871-72	38,932,000	7,142,562	31,789,438	
1872-73	9,310,588	5,932,750	3,377,838	
1873-74	20,165,316	8,019,505	12,145,811	
1874-75	29,451,085	6,859,818	22,591,267	
1875-76	16,859,016	929,015	15,930,001	
1876-77	48,628,015	13,594,568	35,033,447	
1877-78	76,776,337	5,354,123	71,422,214	
1878-79	27,221,736	7,898,329	19,323,407	
1879-80	46,742,742	8,444,351	38,298,391	
1880-81	25,871,073	6,927,463	18,943,610	
1881-82	31,468,682	5,291,345	26,177,337	
1882-83	40,674,314	4,271,789	36,402,525	
1883-84	36,053,494	4,882,559	31,170,935	
1884-85	44,288,435	9,072,616	35,215,819	
1885-86	60,277,734	3,794,079	56,483,655	
1886-87	40,001,467	5,177,956	34,823,511	
1887-88	51,535,276	6,623,306	44,911,970	
1888-89	52,197,456	7,198,493	44,998,963	
1889-90	60,288,509	7,059,335	53,229,174	
1890-91	73,109,219	5,961,600	67,147,619	
1891-92	50,229,883	7,491,797	42,738,086	
1892-93	72,135,135	11,200,409	60,934,726	
1893-94	49,680,971	5,173,881	44,507,090	
1894-95	25,384,063	4,852,044	20,532,019	
1895-96	27,050,795	5,698,067	21,352,728	
1896-97	27,876,938	8,879,980	18,996,958	
1897-98	42,981,037	15,493,065	27,487,972	
1898-99	29,376,232	16,462,569	12,913,663	
1899-1900	30,901,915	9,297,916	21,603,999	
1900-1901	41,132,184	10,290,338	30,841,846	
1901-1902	39,885,187	16,549,234	23,335,953	
1902-1903	39,340,621	16,967,325	22,373,296	
1903-1904	64,829,455	19,647,856	45,181,599	
Total	2,433,025,392	444,899,194	1,990,531,179	2,404,981

NOTE.—Rupee calculated at coining rate, \$0.4737, 1835-36 to 1892-93. Rupee calculated at 16 pence= \$0.32443328 (India, act of June 26, 1893) from 1893-94. The Indian coinage act, September 15, 1899, made the sovereign equal to 15 rupees. Rupee=\$0.3244½.

FRANCE.

Value of GOLD COIN and BULLION imported into and exported from France since 1815.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1815-1821 <i>a</i>	\$424,214,000	\$522,837,000	.....	\$98,623,000
1822-1836 <i>a</i>	1,146,420,000	1,186,950,000	.....	40,530,000
1837-1852 <i>a</i>	1,587,232,000	1,198,144,000	\$389,088,000	.....
1853	61,525,891	5,737,504	55,788,387	.....
1854	92,774,135	12,462,589	80,311,546	.....
1855	73,515,630	31,394,731	42,120,899	.....
1856	89,745,193	17,321,364	72,423,829	.....
1857	109,757,556	23,713,910	86,043,646	.....
1858	106,837,852	12,826,587	94,011,265	.....
1859	140,274,330	36,181,131	104,093,199	.....
1860	90,802,254	30,644,347	60,157,907	.....
1861	47,099,141	51,679,803	.....	4,580,662
1862	77,552,611	45,700,277	31,852,334	.....
1863	71,358,469	69,047,101	2,311,368	.....
1864	89,551,228	65,398,822	24,152,406	.....
1865	80,944,200	51,835,168	29,109,032	.....
1866	156,967,479	67,173,843	89,793,636	.....
1867	114,570,976	35,696,894	78,874,082	.....
1868	95,234,885	54,152,326	41,082,559	.....
1869	87,737,028	34,790,566	52,946,462	.....
1870	59,896,006	36,781,168	23,114,838	.....
1871	27,765,366	69,031,468	.....	41,266,102
1872	27,379,173	37,587,522	.....	10,208,349
1873	33,889,642	54,856,969	.....	20,967,327
1874	99,789,685	16,558,435	83,231,250	.....
1875	117,346,702	26,574,749	90,771,953	.....
1876	115,473,251	18,268,415	97,204,836	.....
1877	103,196,521	19,099,473	84,097,048	.....
1878	70,324,568	24,698,596	45,625,972	.....
1879	37,443,737	69,774,711	.....	32,330,974
1880	37,605,278	78,737,824	.....	41,132,546
1881	45,059,710	43,054,440	2,005,270	.....
1882	54,703,341	37,068,545	17,634,796	.....
1883	12,462,010	26,028,752	.....	13,566,742
1884	24,598,043	15,806,983	8,791,060	.....
1885	47,018,553	38,816,482	8,202,071	.....
1886	50,354,659	38,233,403	12,121,256	.....
1887	17,982,216	49,809,821	.....	31,827,605
1888	19,514,968	37,135,702	.....	17,620,734
1889	65,161,124	24,974,151	40,186,973	.....
1890	22,528,197	48,153,115	.....	25,624,918
1891	69,462,638	45,430,120	24,032,518	.....
1892	74,379,010	20,837,982	53,541,028	.....
1893	58,890,873	22,556,169	36,334,704	.....
1894	88,538,554	20,767,201	67,771,353	.....
1895	48,872,298	47,165,473	1,706,825	.....
1896	58,249,195	60,003,829	.....	1,754,634
1897	56,745,469	25,448,764	31,296,705	.....
1898	38,470,692	60,381,777	.....	21,911,085
1899	61,527,238	31,071,587	30,455,651	.....
1900	87,416,381	24,254,861	63,161,520	.....
1901	82,798,158	23,869,468	58,928,690	.....
1902	85,060,311	24,518,913	60,541,398	.....
1903	62,507,489	24,482,629	38,024,860	.....
Total.....	6,706,525,914	4,795,527,460	2,312,943,132	401,944,678

a For the periods.

Value of SILVER COIN and BULLION imported into and exported from France since 1815.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1815-1821 <i>a</i>	\$60,602,000	\$74,691,000	.....	\$14,089,000
1822-1824 <i>a</i>	79,323,000	9,264,000	\$70,059,000	.....
1825-1829 <i>a</i>	186,824,000	84,534,000	102,290,000	.....
1830-1836 <i>a</i>	200,527,000	71,410,000	129,117,000	.....
1837-1852 <i>a</i>	515,696,000	202,071,000	313,625,000	.....
1853	21,725,817	44,284,622	.....	22,558,805
1854	19,270,664	50,863,606	.....	31,592,942
1855	23,331,963	61,383,843	.....	38,051,880
1856	21,209,928	75,949,167	.....	54,739,239
1857	18,965,917	88,411,177	.....	69,445,260
1858	31,002,555	33,885,975	.....	2,883,420
1859	40,633,641	73,737,580	.....	33,103,939
1860	25,206,765	55,554,664	.....	30,347,899
1861	33,230,740	45,160,649	.....	11,929,909
1862	25,368,885	41,999,888	.....	16,631,003
1863	31,073,000	44,262,813	.....	13,189,813
1864	51,672,276	59,869,758	.....	8,197,482
1865	45,574,441	31,565,343	14,009,098	.....
1866	48,260,036	39,581,791	8,678,245	.....
1867	49,095,533	12,493,276	36,602,257	.....
1868	37,260,001	16,169,926	21,090,075	.....
1869	37,213,102	15,708,077	21,505,025	.....
1870	20,465,720	13,620,589	6,845,131	.....
1871	30,337,863	27,343,082	2,994,781	.....
1872	46,488,682	26,754,432	19,734,250	.....
1873	75,083,562	40,054,448	35,029,114	.....
1874	83,842,095	14,181,833	69,660,262	.....
1875	51,488,926	15,717,920	35,771,006	.....
1876	39,601,863	12,501,575	27,100,288	.....
1877	28,594,108	8,143,828	20,450,280	.....
1878	34,555,492	11,620,530	22,934,962	.....
1879	26,602,927	11,999,968	14,602,959	.....
1880	19,487,017	12,000,933	7,486,084	.....
1881	25,112,195	15,251,246	9,860,949	.....
1882	24,713,071	30,348,092	.....	5,635,021
1883	15,717,920	18,517,192	.....	2,799,272
1884	19,500,720	8,938,602	10,562,118	.....
1885	45,505,290	26,581,143	18,924,147	.....
1886	35,518,423	25,923,836	9,594,587	.....
1887	34,354,592	26,738,827	7,615,765	.....
1888	31,669,988	21,021,915	10,648,073	.....
1889	21,350,913	19,818,847	1,532,066	.....
1890	26,614,436	20,822,832	5,791,604	.....
1891	34,030,365	28,055,497	5,974,868	.....
1892	24,020,020	20,739,863	3,280,157	.....
1893	31,689,656	24,561,540	7,128,116	.....
1894	18,326,887	21,201,693	.....	2,874,806
1895	27,227,348	17,163,361	10,063,987	.....
1896	30,217,696	18,771,262	11,446,434	.....
1897	36,603,944	50,655,735	.....	14,051,791
1898	36,874,144	36,657,513	216,631	.....
1899	36,292,338	42,392,673	.....	6,100,335
1900	28,194,516	39,909,728	.....	11,715,212
1901	18,885,436	27,119,395	.....	8,233,959
1902	18,667,732	23,085,502	.....	4,417,770
1903	25,879,114	20,305,337	5,073,777	.....
Total.....	2,706,082,263	2,011,372,924	1,097,298,096	402,588,757

a For the periods.

BELGIUM.

Value of GOLD COIN and BULLION imported into and exported from Belgium since 1852.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1852-1855 <i>a</i>	<i>b</i> \$32, 295, 892	<i>b</i> \$44, 691, 920	.....	\$12, 396, 028
1856-1860 <i>a</i>	<i>b</i> 61, 901, 100	<i>b</i> 182, 089, 520	.....	120, 188, 420
1861-1865 <i>a</i>	<i>b</i> 36, 100, 885	<i>b</i> 129, 583, 765	.....	93, 482, 880
1866-1870 <i>a</i>	<i>b</i> 72, 521, 380	<i>b</i> 23, 035, 185	\$49, 486, 195	.....
1871-1875 <i>a</i>	<i>b</i> 192, 250, 550	<i>b</i> 17, 445, 265	174, 805, 285	.....
1876-1880 <i>a</i>	8, 022, 250	896, 295	7, 125, 955	.....
1881.....	250, 740	11, 966	238, 774	.....
1882.....	3, 169, 602	3, 689, 539	.....	519, 937
1883.....	476, 808	3, 227, 608	.....	2, 750, 800
1884.....	1, 302, 424	4, 037, 622	.....	2, 735, 198
1885.....	2, 950, 557	779, 767	2, 170, 790	.....
1886.....	2, 095, 316	522, 993	1, 572, 323	.....
1887.....	764, 845	34, 741	730, 104	.....
1888.....	1, 157, 699	66, 477	1, 091, 222	.....
1889.....	13, 550, 148	466, 673	13, 083, 475	.....
1890.....	9, 202, 507	195, 444	9, 007, 063	.....
1891.....	356, 479	2, 517	353, 962	.....
1892.....	512, 378	10, 534	501, 844	.....
1893.....	546, 675	32, 450	514, 225	.....
1894.....	3, 904, 676	325, 100	3, 579, 576	.....
Total.....	443, 332, 911	411, 145, 381	264, 260, 793	232, 073, 263

a For the periods.

b Gold and silver.

Value of SILVER COIN and BULLION imported into and exported from Belgium since 1852.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1852-1855.....	.....	.....	.....	.....
1856-1860.....	.....	.....	.....	.....
1861-1865.....	.....	.....	.....	.....
1866-1870.....	.....	.....	.....	.....
1871-1875.....	.....	.....	.....	.....
1876-1880 <i>a</i>	\$30, 651, 950	\$3, 763, 675	\$26, 888, 275	.....
1881.....	4, 426, 007	3, 385, 085	1, 040, 922	.....
1882.....	5, 897, 347	433, 119	5, 464, 228	.....
1883.....	16, 850, 216	3, 516, 753	13, 333, 463	.....
1884.....	7, 116, 601	1, 890, 570	5, 226, 031	.....
1885.....	579, 886	62, 731	517, 155	.....
1886.....	2, 595, 119	168, 891	2, 426, 228	.....
1887.....	267, 046	175, 512	91, 534	.....
1888.....	1, 757, 497	760, 231	997, 266	.....
1889.....	10, 391, 231	1, 510, 060	8, 881, 171	.....
1890.....	10, 595, 251	1, 179, 518	9, 415, 733	.....
1891.....	297, 911	13, 823	284, 088	.....
1892.....	333, 179	25, 379	307, 800	.....
1893.....	362, 453	50, 419	312, 034	.....
1894.....	1, 004, 219	3, 864, 205	.....	\$2, 859, 986
Total.....	93, 125, 913	20, 799, 971	75, 185, 928	2, 859, 986

a For the period.

SWITZERLAND.

Value of GOLD COIN and BULLION imported into and exported from Switzerland since 1878.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1878	\$1,861,375	\$1,794,898	\$66,477	.....
1879	2,991,496	864,210	2,127,286	.....
1880	2,858,541	1,528,957	1,329,584	.....
1881	2,127,286	664,778	1,462,508	.....
1882	2,792,063	531,822	2,260,241	.....
1883	4,985,827	1,263,076	3,722,751	.....
1884	2,526,152	132,955	2,393,197	.....
1885 <i>a</i>	5,553,786	6,199,670	.....	\$645,884
1886	2,523,493	1,931,777	591,716	.....
1887	2,949,615	2,234,979	714,636	.....
1888	2,877,819	1,879,324	998,495	.....
1889	6,594,579	1,067,906	5,526,673	.....
1890	6,118,551	1,226,808	4,891,743	.....
1891	2,553,554	1,124,854	1,428,700	.....
1892	4,548,749	1,485,931	3,062,818	.....
1893	4,802,720	2,120,080	2,682,640	.....
1894	9,275,749	4,059,069	5,216,680	.....
1895	7,742,375	4,030,768	3,711,607	.....
1896	3,727,475	5,093,332	.....	1,365,857
1897	9,210,170	4,484,135	4,726,035	.....
1898	8,315,572	4,228,718	4,086,854	.....
1899	8,896,545	6,125,000	2,771,545	.....
1900	8,856,996	4,015,485	4,841,511	.....
1901	13,407,332	4,009,891	9,397,441	.....
1902	10,018,040	5,577,152	4,440,888	.....
1903	11,651,901	5,564,542	6,087,359	.....
Total	149,767,761	73,240,147	78,539,355	2,011,741

a Gold and silver.

Value of SILVER COIN and BULLION imported into and exported from Switzerland since 1878.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1878	\$2,985,037	\$1,136,544	\$1,848,493	.....
1879	3,040,792	192,998	2,847,794	.....
1880	5,240,970	471,773	4,769,197	.....
1881	4,880,707	450,329	4,430,378	.....
1882	4,696,286	1,518,251	3,178,035	.....
1883	3,898,561	1,037,901	2,860,660	.....
1884	2,993,615	802,014	2,191,601	.....
1885 .....	.....	.....	.....	.....
1886	5,342,358	3,427,045	1,915,313	.....
1887	6,187,818	3,589,979	2,597,839	.....
1888	6,500,132	3,528,862	2,971,270	.....
1889	8,877,855	2,844,575	6,033,280	.....
1890	8,522,390	3,843,796	4,678,594	.....
1891	10,570,093	6,030,421	4,539,672	.....
1892	7,340,632	5,398,789	1,941,843	.....
1893	8,076,938	8,760,037	.....	\$683,099
1894	6,312,702	6,771,227	.....	458,525
1895	10,835,343	5,025,086	5,810,257	.....
1896	9,787,265	5,531,494	4,255,771	.....
1897	14,523,709	7,423,417	7,100,292	.....
1898	16,657,880	8,307,405	8,350,475	.....
1899	23,114,229	9,113,377	14,000,852	.....
1900	17,888,177	6,371,960	11,516,217	.....
1901	8,429,956	2,278,442	6,151,514	.....
1902	13,323,559	2,754,094	10,569,465	.....
1903	6,369,124	1,716,559	4,652,565	.....
Total	216,396,128	98,326,375	119,211,377	1,141,624

ITALY.

Value of GOLD COIN and BULLION imported into and exported from Italy since 1862.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1862 <i>a</i>	\$29,857	\$202,065	.....	\$172,208
1863 <i>a</i>	40,452	77,666	.....	37,214
1864 <i>a</i>	29,805	36,624	.....	6,819
1865 <i>a</i>	6,652	143,484	.....	136,832
1866 <i>a</i>	263,285	905,363	.....	642,078
1867 <i>a</i>	286,002	1,496,472	.....	1,210,470
1868 <i>a</i>	231,329	284,426	.....	3,097
1869 <i>a</i>	291,951	30,309	\$261,642	.....
1870 <i>a</i>	260,668	188,088	72,580	.....
1871 <i>a</i>	432,786	2,097,918	.....	1,665,132
1872 <i>a</i>	791,629	953,115	.....	161,486
1873 <i>a</i>	4,918,051	340,794	4,577,257	.....
1874 <i>a</i>	1,804,050	1,403,096	400,954	.....
1875 <i>a</i>	1,619,190	2,198,594	.....	579,404
1876 <i>a</i>	3,887,505	1,612,785	2,274,720	.....
1877 <i>a</i>	2,841,419	3,709,674	.....	868,255
1878.....	1,517,775	3,945,680	.....	2,427,905
1879.....	1,824,846	6,411,120	.....	4,586,274
1880.....	2,979,063	3,063,200	.....	84,137
1881.....	14,351,731	3,957,098	10,394,633	.....
1882.....	12,344,261	222,934	12,121,327	.....
1883.....	8,120,475	1,616,124	6,504,351	.....
1884.....	3,942,758	2,271,243	1,671,515	.....
1885.....	2,257,849	19,558,195	.....	17,300,346
1886.....	2,063,595	1,798,760	264,835	.....
1887.....	1,500,479	4,705,456	.....	3,204,977
1888.....	1,432,639	4,372,936	.....	2,940,297
1889.....	3,086,186	3,515,090	.....	428,904
1890.....	1,913,325	3,817,212	.....	1,903,887
1891.....	2,316,000	3,184,500	.....	868,500
1892.....	4,173,109	6,710,037	.....	2,536,928
1893.....	2,899,208	14,954,167	.....	12,054,959
1894.....	3,579,320	4,578,867	.....	999,547
1895.....	1,030,427	3,262,472	.....	2,232,045
1896.....	1,106,006	2,748,610	.....	1,642,604
1897.....	670,521	1,655,052	.....	984,531
1898.....	346,550	2,407,868	.....	2,061,318
Total.....	91,240,754	114,437,094	38,543,814	61,740,154

a Gold and silver.*Value of SILVER COIN and BULLION imported into and exported from Italy since 1878.*

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1878.....	\$737,937	\$5,067,962	.....	\$4,330,025
1879.....	997,378	375,020	\$622,358	.....
1880.....	4,638,937	2,498,174	2,140,763	.....
1881.....	3,654,990	1,442,156	2,212,834	.....
1882.....	10,703,056	985,155	9,717,901	.....
1883.....	10,037,549	1,919,564	8,117,985	.....
1884.....	1,091,724	3,713,730	.....	2,622,006
1885.....	20,414,016	16,822,841	3,591,175	.....
1886.....	8,809,527	8,845,808	.....	36,281
1887.....	15,676,915	16,622,411	.....	945,496
1888.....	11,504,228	10,194,453	1,309,775	.....
1889.....	6,489,085	7,111,124	.....	622,039
1890.....	9,212,739	9,047,222	165,517	.....
1891.....	8,163,900	8,916,600	.....	752,700
1892.....	10,653,251	12,233,135	.....	1,579,884
1893.....	8,920,296	6,901,927	2,018,369	.....
1894.....	17,358,980	4,433,107	12,925,873	.....
1895.....	432,127	1,655,940	.....	1,223,813
1896.....	1,045,445	1,717,291	.....	671,846
1897.....	1,137,785	3,816,249	.....	2,678,464
1898.....	318,103	2,754,443	.....	2,436,340
Total.....	151,997,968	127,074,312	42,822,550	17,898,894

NOTE.—From 1862 to 1878 silver was included with gold in the reports.

PORTUGAL.

Value of GOLD COIN and BULLION imported into and exported from Portugal since 1869.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1869	\$325,712	\$136,358	\$189,354	
1870	1,232,768	74,264	1,158,504	
1871	3,878,716	48,197	3,830,519	
1872	1,938,875	2,329	1,936,046	
1873	4,221,064	35,527	4,185,537	
1874	1,565,302	42,963	1,522,339	
1875	2,693,037	71,771	2,621,266	
1876	4,671,243	1,786,325	2,884,918	
1877	779,127	1,520,681		\$741,554
1878	3,513,650	1,823,424	1,690,226	
1879 <i>a</i>	1,343,520	2,838,240		1,494,720
1880	2,779,705	30,489	2,749,216	
1881 <i>a</i>	3,248,640	135,000	3,113,640	
1882	2,956,220	2,795,667	160,553	
1883	21,044,080	2,425,351	18,618,729	
1884	2,932,122	295,764	2,636,358	
1885 <i>a</i>	4,177,000	847,000	3,330,000	
1886	9,448,364	3,737	9,444,627	
1887	4,762,970	3,123	4,759,847	
1888	4,866,877	572,297	4,294,580	
1889	10,844	2,037	8,807	
1890	15,878,704	11,284,488	4,594,216	
1891	4,018,788	462,988	3,555,800	
1892	1,596,114	9,805,793		8,209,679
1893	1,010,664	6,237,108		5,226,444
1894	3,830	3,891		61
1895	979,274	2,267,537		1,288,263
1896	15,120,000	3,456,000	11,664,000	
1897	18,258	37,794		19,536
1898	70,391	1,101,225		1,030,834
1899	2,553	1,026,233		1,023,680
1900	63,288	1,307,988		1,244,700
1901	1,214,387	1,210,961	3,426	
1902	9,180	751,356		742,176
Total	122,375,267	54,444,406	88,952,508	21,021,647

a Gold and silver.

Value of SILVER COIN and BULLION imported into and exported from Portugal since 1869.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1869	\$7,747	\$371,232		\$363,485
1870	2,984	244,858		241,874
1871	33,026	129,078		96,052
1872	346	41,891		41,545
1873	24,632	39,701		15,069
1874	62,387	76,842		14,455
1875	47,537	54,607		7,070
1876	173,774	30,467	\$143,307	
1877	63,818	111,718		47,900
1878	362,572	216,391	146,181	
1879				
1880	47,181	33,035	14,146	
1881				
1882	66,006	16,417	49,589	
1883	500,713	107,888	392,825	
1884	79,669	23,869	55,800	
1885				
1886	637,189	3,886	633,303	
1887	338,959	2,118	336,841	
1888	99,936	102,948		3,012
1889	487	109	378	
1890	495,720	204,984	290,736	
1891	4,911,840	5,338,440		426,600
1892	2,465,264	271,793	2,193,471	
1893		166,536		166,536
1894	298	302		4
1895	255,199	218,933	36,266	
1896	1,537,920		1,537,920	
1897	175,094	<i>a</i> 1,651,148		1,476,054
1898	1,579,349	458,175	1,121,174	
1899	967,441	287,245	680,196	
1900	457,596		457,596	
1901	676,733	280,991	395,742	
1902	423,468	406,188	17,280	
Total	16,494,885	10,891,790	8,502,751	2,899,656

a Gold and silver not separated.

NOTE.—1879-1881 and 1885, silver was included with gold in the reports.

AUSTRIA-HUNGARY.

Value of GOLD COIN and BULLION imported into and exported from Austria-Hungary since 1859.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1859	\$13,358,460	\$9,768,955	\$3,589,505	
1860	6,933,771	8,345,382		\$1,411,611
1861	6,646,000	6,124,289	521,711	
1862	7,500,011	8,090,176		590,165
1863	10,498,022	8,199,170	2,298,852	
1864	5,677,013	5,940,195		263,182
1865	4,252,111	4,644,889		392,778
1866	6,284,458	5,027,699	1,256,759	
1867	8,491,594	4,383,702	4,107,892	
1868	7,672,142	2,662,388	5,009,754	
1869	13,313,267	3,946,395	9,366,872	
1870	16,115,885	7,217,556	8,898,329	
1871	26,986,083	9,710,471	17,275,612	
1872	15,656,646	5,930,225	9,726,421	
1873	12,380,169	2,108,111	10,272,058	
1874	4,699,387	296,412	4,402,975	
1875	1,998,452	1,609,661	388,791	
1876	10,285,350	2,845,817	7,439,533	
1877	8,671,036	2,758,755	5,912,281	
1878	6,760,976	1,860,880	4,900,096	
1879	10,454,823	1,452,816	9,002,007	
1880	10,562,488	1,516,617	9,045,871	
1881	9,412,065	998,220	8,413,845	
1882	8,411,178	1,995,129	6,416,049	
1883	6,420,701	968,322	5,452,379	
1884	4,745,244	1,384,362	3,360,882	
1885	3,833,413	1,935,980	1,897,433	
1886	3,156,850	451,263	2,705,587	
1887	3,329,646	1,497,344	1,832,302	
1888	10,559,829	4,533,237	6,026,592	
1889	9,958,366	3,468,547	6,489,819	
1890	18,973,001	1,733,941	17,239,060	
1891	17,149,500	4,072,418	13,077,082	
1892	30,107,622	1,153,446	28,954,176	
1893	68,933,160	6,291,269	62,641,891	
1894	22,292,000	18,951,806	3,340,194	
1895	27,645,892	11,617,791	16,028,101	
1896	24,711,754	13,672,619	11,039,135	
1897	42,637,823	20,412,091	22,225,732	
1898	10,663,773	24,984,689		14,320,916
1899	8,585,992	14,245,490		5,659,498
1900	12,918,193	13,629,182		710,989
1901	35,731,855	7,585,753	28,146,102	
1902	37,237,476	14,630,556	22,606,920	
1903	25,440,892	12,934,185	12,506,707	
Total	658,054,369	287,588,201	393,815,307	23,349,139

Value of SILVER COIN and BULLION imported into and exported from Austria-Hungary since 1859.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1859	\$17,324,743	\$22,440,114	.....	\$5,115,371
1860	9,300,505	16,127,316	.....	6,826,811
1861	7,386,002	7,573,146	.....	187,144
1862	4,576,629	6,358,763	.....	1,782,134
1863	5,128,338	3,697,136	\$1,431,202	.....
1864	3,229,170	6,193,978	.....	2,964,808
1865	6,416,116	3,637,996	2,778,120	.....
1866	7,067,029	18,568,343	.....	11,501,314
1867	4,544,544	5,856,469	.....	1,311,925
1868	8,599,096	5,659,682	2,939,414	.....
1869	6,814,801	2,782,691	4,032,110	.....
1870	4,621,514	6,210,934	.....	1,589,420
1871	4,225,114	11,361,133	.....	7,136,019
1872	3,148,004	20,579,681	.....	17,431,677
1873	8,224,807	10,153,939	.....	1,929,132
1874	5,130,042	7,379,934	.....	2,249,892
1875	4,950,710	5,693,304	.....	742,594
1876	6,922,317	12,946,813	.....	6,024,496
1877	5,619,826	4,780,771	839,055	.....
1878	18,478,532	5,524,363	12,954,169	.....
1879	20,774,473	2,687,560	18,086,913	.....
1880	3,615,928	8,231,457	.....	4,615,529
1881	7,905,793	651,495	7,254,298	.....
1882	1,562,781	23,157,024	.....	21,594,243
1883	3,186,613	96,627	3,089,986	.....
1884	882,859	2,737,890	.....	1,855,031
1885	1,611,073	1,870,907	.....	259,834
1886	1,354,690	12,842	1,341,848	.....
1887	1,348,456	467,924	880,532	.....
1888	1,524,255	404,379	1,119,876	.....
1889	2,040,721	55,940	1,984,781	.....
1890	1,329,588	44,511	1,285,077	.....
1891	1,852,808	974,604	878,204	.....
1892	3,699,472	1,738,086	1,961,386	.....
1893	3,699,668	1,865,102	1,834,566	.....
1894	4,729,927	3,073,648	1,656,279	.....
1895	1,395,736	1,097,257	298,479	.....
1896	3,032,310	3,470,300	.....	437,990
1897	2,205,065	2,352,442	.....	147,377
1898	434,100	541,351	.....	107,251
1899	686,683	1,738,235	.....	1,051,552
1900	1,066,691	2,246,907	.....	1,180,216
1901	993,975	1,263,382	.....	269,407
1902	3,245,501	4,738,121	.....	1,492,620
1903	2,769,444	2,601,074	168,370	.....
Total.....	218,656,449	251,645,571	66,814,665	99,803,787

NOTE.—The above is at United States silver-dollar coining rate.

GERMANY.

Value of GOLD COIN and BULLION imported into and exported from Germany since 1872.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1872	\$8,396,640	\$24,247,440		\$15,850,800
1873	84,252,000	12,598,530	\$71,653,470	
1874	4,176,900	8,353,800		4,176,900
1875	3,665,200	6,664,000		2,998,800
1876	20,991,600	5,331,200	15,660,400	
1877	17,374,000	11,067,000	6,307,000	
1878	40,126,800	333,200	39,793,600	
1879	20,658,400	1,332,800	19,325,600	
1880	4,962,300	7,064,551		2,102,251
1881	3,350,564	10,863,510		7,512,946
1882	6,816,558	9,335,788		2,519,230
1883	4,963,252	10,027,416		5,064,164
1884	4,384,912	7,873,754		3,488,842
1885	10,127,138	5,837,664	4,289,474	
1886	11,152,204	5,522,790	5,629,414	
1887	13,193,054	3,993,878	9,199,176	
1888	31,943,646	23,868,544	8,075,102	
1889	17,375,404	13,678,146	3,697,258	
1890	26,471,145	10,816,886	15,654,259	
1891	56,647,846	31,689,457	24,958,389	
1892	45,612,162	38,897,709	6,714,453	
1893	35,551,259	24,175,031	11,376,228	
1894	74,130,690	12,689,947	61,440,743	
1895	23,193,328	19,574,609	3,618,719	
1896	52,421,909	47,000,480	5,421,429	
1897	36,822,654	28,239,437	8,583,217	
1898	77,637,405	52,780,811	24,856,594	
1899	64,563,395	32,307,398	32,255,997	
1900	57,415,834	27,098,680	30,317,154	
1901	61,126,228	12,278,509	48,847,719	
1902	33,077,957	25,233,161	7,844,796	
1903	66,822,308	21,808,892	45,013,416	
Total	1,019,404,692	552,585,021	510,533,607	43,713,936

Value of SILVER COIN and BULLION imported into and exported from Germany since 1872.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1872	\$40,698,000	\$17,157,420	\$23,540,580	
1873	35,057,400	31,915,800	3,141,600	
1874	12,052,320	17,080,308		\$5,027,988
1875	7,216,160	9,253,440		2,037,280
1876	5,483,520	8,409,492		2,925,972
1877	7,106,680	4,678,128	2,428,552	
1878	9,520,000	6,645,912	2,874,088	
1879	7,794,500	9,567,600		1,773,100
1880	4,366,348	5,017,992		651,644
1881	3,142,790	4,165,714		1,022,924
1882	1,551,284	3,418,156		1,866,872
1883	1,502,018	4,917,556		3,415,538
1884	1,356,838	7,468,202		6,111,364
1885	710,906	4,618,866		3,907,960
1886	2,310,980	10,141,894		7,830,914
1887	2,060,842	9,063,278		7,002,436
1888	2,603,958	11,056,290		8,452,332
1889	2,254,669	13,934,329		11,679,660
1890	3,141,743	13,442,240		10,300,497
1891	4,056,672	13,166,707		9,110,035
1892	3,904,687	3,029,225	875,462	
1893	2,464,328	11,894,183		9,429,855
1894	4,251,407	8,450,850		4,199,443
1895	2,389,088	5,547,817		3,158,729
1896	3,163,429	7,260,925		4,097,496
1897	3,177,552	7,670,089		4,492,537
1898	2,657,135	7,445,693		4,788,558
1899	2,310,815	5,920,626		3,609,811
1900	3,979,122	6,392,204		2,413,082
1901	4,479,537	6,981,803		2,502,266
1902	5,389,510	6,830,176		1,440,666
1903	5,701,290	5,636,316	64,974	
Total	197,855,528	288,179,231	32,925,256	123,248,959

NETHERLANDS.

Value of GOLD COIN and BULLION imported into and exported from the Netherlands since 1851.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1851-1855 <i>a</i>	<i>b</i> \$22,655,250	<i>b</i> \$20,375,265	\$2,279,985	.....
1856-1860 <i>a</i>	<i>b</i> 34,469,490	26,990,020	7,479,470	.....
1861-1865 <i>a</i>	<i>b</i> 26,803,655	<i>b</i> 36,969,725	.....	\$10,166,070
1866-1870 <i>a</i>	<i>b</i> 42,527,210	<i>b</i> 26,139,410	16,387,800	.....
1871-1875 <i>a</i>	<i>b</i> 50,747,505	<i>b</i> 18,602,135	32,145,370	.....
1876-1880 <i>a</i>	22,539,255	4,538,920	18,000,335	.....
1881.....	2,668,641	3,183,004	.....	514,363
1882.....	4,014,018	1,852,411	2,161,607	.....
1883.....	11,393,703	308,645	11,085,058	.....
1884.....	5,658,021	805,809	4,852,212	.....
1885.....	6,595,534	421,963	6,173,571	.....
1886.....	11,212,074	770,212	10,441,862	.....
1887.....	1,248,992	603	1,248,389	.....
1888.....	3,766,457	5,553,435	.....	1,786,978
1889.....	988,855	822,894	165,961	.....
1890.....	2,623,952	228,158	2,395,794	.....
1891.....	3,707,284	891,636	2,815,648	.....
1892.....	852,155	97,464	754,691	.....
1893.....	7,044,546	943,333	6,101,213	.....
1894.....	3,258,790	263,713	2,995,077	.....
1895.....	1,385,000	305,124	1,079,876	.....
1896.....	1,956,695	84,098	1,872,597	.....
1897.....	8,568,577	33,338	8,535,239	.....
1898.....	12,645,380	427,908	12,217,472	.....
1899.....	3,789,213	2,911,336	877,877	.....
1900.....	6,757,901	733,004	6,024,897	.....
1901.....	4,207,059	691,806	3,515,253	.....
1902.....	3,118,344	1,739,961	1,378,383	.....
1903.....	2,048,278	1,737,689	310,589	.....
Total.....	309,251,834	158,423,019	163,296,226	12,467,411

a For the periods. *b* Gold and silver.

Value of SILVER COIN and BULLION imported into and exported from the Netherlands since 1851.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1851-1855.....	.....	.....	.....	.....
1856-1860.....	.....	.....	.....	.....
1861-1865.....	.....	.....	.....	.....
1866-1870.....	.....	.....	.....	.....
1871-1875.....	.....	.....	.....	.....
1876-1880 <i>a</i>	\$13,273,625	\$8,520,980	\$4,752,645	.....
1881.....	976,851	19,507	957,344	.....
1882.....	1,061,238	26,745	1,034,493	.....
1883.....	926,065	111,256	814,809	.....
1884.....	706,709	425,125	281,584	.....
1885.....	950,119	286,444	663,675	.....
1886.....	572,811	11,619	561,192	.....
1887.....	309,492	47,430	262,062	.....
1888.....	387,333	1,631,316	.....	\$1,243,978
1889.....	264,797	6,668,657	.....	6,403,860
1890.....	551,823	3,083,943	.....	2,532,120
1891.....	4,802,292	625,512	4,176,780	.....
1892.....	5,255,793	2,241,753	3,014,040	.....
1893.....	951,392	318,143	633,249	.....
1894.....	2,466,758	630,403	1,836,355	.....
1895.....	1,128,354	22,310	1,106,044	.....
1896.....	639,381	247,981	391,400	.....
1897.....	1,053,263	3,922	1,054,341	.....
1898.....	502,864	640,320	.....	137,456
1899.....	379,277	3,305,086	.....	2,925,809
1900.....	298,235	742,691	.....	444,456
1901.....	3,278,008	889,557	2,388,451	.....
1902.....	2,628,573	101,976	2,526,597	.....
1903.....	1,220,856	797,636	423,220	.....
Total.....	44,590,914	31,400,312	26,878,281	13,687,679

a For the period.

SPAIN.

Value of GOLD and SILVER COIN and BULLION imported into and exported from Spain since 1871.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1871	\$20,765,642	\$1,648,799	\$19,116,843	
1872	20,538,288	482,886	20,055,402	
1873	20,342,972	1,229,796	19,113,176	
1874	12,228,866	1,245,236	10,983,630	
1875	17,800,197	832,988	16,967,209	
1876	2,318,123	820,636	1,497,487	
1877	9,505,250	402,019	9,103,231	
1878	7,504,226	441,198	7,063,028	
1879	6,577,247	590,773	5,986,474	
1880	17,241,848	2,458,048	14,783,800	
1881	2,021,289	1,252,570	768,719	
1882	7,896,981	1,370,879	6,526,102	
1883	9,502,355	1,399,057	8,103,298	
1884	8,718,196	458,375	8,259,821	
1885	5,243,810	1,888,119	3,355,691	
1886	12,131,787	509,327	11,622,460	
1887	3,861,158	886,642	2,974,516	
1888	546,383	820,250		\$273,867
1889	2,611,869	2,555,706	56,163	
1890	8,359,988	1,027,918	7,332,070	
1891	22,661,095	4,028,875	18,632,220	
1892	8,948,997	8,380,253	568,744	
1893	5,026,068	2,528,135	2,497,933	
1894	4,866,595	690,223	4,176,372	
1895	4,680,687	8,142,978		3,462,291
1896	19,659,369	23,892,671		4,233,302
1897	26,984,769	32,931,362		5,946,593
1898	13,730,792	4,121,534	9,609,258	
1899	14,808,815	4,038,695	10,770,120	
1900	1,065,221	4,063,570		2,998,349
1901 <i>a</i>				
1902	2,385,851	2,875,763		489,912
1903	2,708,972	3,923,061		1,214,089
Total	323,243,706	121,938,342	219,923,767	18,618,403

a No returns.

SCANDINAVIAN UNION.

Value of GOLD and SILVER COIN and BULLION imported into and exported from Norway, Sweden, and Denmark since 1871.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1871 <i>a</i>	\$2,896,008	\$558,780	\$2,337,228	
1872 <i>a</i>	3,461,220	30,284	3,430,936	
1873 <i>a</i>	7,014,364	4,843,832	2,170,532	
1874 <i>a</i>	3,424,772	2,234,584	1,190,188	
1875	5,966,484	3,348,928	2,617,556	
1876	10,659,432	10,956,644		\$297,212
1877	6,223,496	4,402,007	1,821,489	
1878	6,982,472	3,091,916	3,890,556	
1879	9,207,944	5,361,876	3,846,068	
1880	7,203,572	2,399,940	4,803,632	
1881	4,036,884	3,252,448	784,436	
1882	3,152,484	2,179,108	973,376	
1883	4,043,852	1,836,068	2,207,784	
1884	2,927,096	1,079,236	1,847,860	
1885	2,379,481	1,813,154	566,327	
1886	2,519,987	322,813	2,197,174	
1887 <i>b</i>	4,959,684	2,387,880	2,571,804	
1888 <i>b</i>	1,656,650	705,486	951,164	
1889	2,911,368	1,353,802	1,557,566	
1890	1,374,770	746,136	628,634	
1891	1,966,988	933,893	1,033,095	
1892	1,672,238	389,821	1,282,417	
1893	657,388	953,819		296,431
1894	3,073,305	781,238	2,292,067	
1895	3,329,967	654,459	2,675,508	
1896	780,620	1,407,293		626,673
1897	2,956,106	92,743	2,863,363	
1898	5,099,397	627,724	4,471,673	
1899	1,501,952	1,365,933	136,019	
1900	357,445	900,078		542,633
1901	2,322,175		2,322,175	
1902	297,931	402,000		104,019
1903	3,350,416	212,123	3,138,293	
Total	120,367,998	61,626,046	60,608,920	1,866,968

a Exclusive of imports and exports of Denmark. *b* Exclusive of imports and exports of Norway.

RUSSIA.

Value of GOLD COIN and BULLION imported into and exported from Russia since 1871.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1871	\$4,897,071	\$13,013,320	.....	\$8,116,249
1872	6,260,070	4,992,774	\$1,267,296	.....
1873	1,929,500	11,043,686	.....	9,114,186
1874	5,056,834	13,162,277	.....	8,105,443
1875	1,328,268	21,283,157	.....	19,954,889
1876	1,148,438	78,603,971	.....	77,455,533
1877	7,257,235	10,490,306	.....	3,233,071
1878	7,910,178	5,252,871	2,657,307	.....
1879	5,702,058	4,493,420	1,208,638	.....
1880	5,438,103	19,971,097	.....	14,532,994
1881	4,145,338	51,652,715	.....	47,507,377
1882	3,464,610	52,957,057	.....	49,492,447
1883	2,326,205	14,827,822	.....	12,501,617
1884	1,861,582	3,884,469	.....	2,022,887
1885	1,921,010	4,118,325	.....	2,197,315
1886	1,853,092	11,031,337	.....	9,178,245
1887	1,691,014	14,579,302	.....	12,888,288
1888	16,213,203	27,013,772	.....	10,800,569
1889	2,074,598	13,468,682	.....	11,394,084
1890	12,195,212	13,054,997	.....	859,785
1891	55,818,120	475,429	55,342,691	.....
1892	89,497,054	195,956	89,301,098	.....
1893	10,225,426	134,454	10,090,972	.....
1894	84,527,216	29,085,329	55,441,887	.....
1895	19,486,233	185,070	19,301,163	.....
1896	69,720,678	180,715	69,539,963	.....
1897	71,871,436	3,084,139	68,787,297	.....
1898	52,154,937	185,070	51,969,867	.....
1899	25,532,051	27,771,673	.....	2,239,622
1900	2,636,576	59,877,804	.....	57,242,228
1901	4,460,206	34,874,304	.....	30,414,098
1902	4,259,528	445,094	3,814,434	.....
Total	584,862,080	545,390,394	428,722,613	389,250,927

Value of SILVER COIN and BULLION imported into and exported from Russia since 1871.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1871	\$830,457	\$628,245	\$202,212	.....
1872	3,803,430	969,381	2,834,049	.....
1873	13,932,534	273,989	13,658,545	.....
1874	7,778,200	341,136	7,437,064	.....
1875	3,642,896	354,256	3,288,640	.....
1876	3,038,577	1,087,466	1,951,111	.....
1877	1,193,975	4,367,616	.....	\$3,173,641
1878	4,842,273	5,672,730	.....	830,457
1879	5,697,428	3,369,679	2,327,749	.....
1880	4,124,499	2,240,535	1,883,964	.....
1881	3,530,985	1,592,223	1,938,762	.....
1882	4,078,963	9,110,327	.....	5,031,364
1883	2,732,944	2,115,504	617,440	.....
1884	2,654,220	1,779,771	874,449	.....
1885	3,323,371	2,479,793	843,578	.....
1886	3,669,137	1,880,877	1,788,260	.....
1887	3,143,541	2,235,133	908,408	.....
1888	1,471,051	3,127,334	.....	1,656,283
1889	6,511,777	2,333,151	4,208,626	.....
1890	5,693,569	3,101,864	2,591,705	.....
1891	8,145,577	4,131,445	4,014,132	.....
1892	9,019,503	4,157,443	4,862,060	.....
1893	17,570,074	6,190,131	11,379,940	.....
1894	19,076,853	5,844,742	13,232,111	.....
1895	21,536,271	1,762,512	19,773,759	.....
1896	41,498,492	2,708,233	38,790,259	.....
1897	76,659,089	7,333,495	69,325,594	.....
1898	15,336,033	2,262,788	13,073,245	.....
1899	16,396,290	1,038,307	15,357,983	.....
1900	14,891,366	9,233,264	5,658,102	.....
1901	4,818,854	1,905,930	2,912,924	.....
1902	3,149,622	3,212,398	.....	62,776
Total	333,821,851	98,841,701	245,734,671	10,754,521

JAPAN.

Value of GOLD COIN and BULLION imported into and exported from Japan since 1872.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1872	\$129,951	\$2,684,786	.....	\$2,554,835
1873	2,013,907	2,614,055	.....	600,148
1874	2,700	8,126,290	.....	8,123,590
1875	26,515	10,603,345	.....	10,576,830
1876	621,464	5,872,356	.....	5,250,892
1877	162,280	6,221,776	.....	6,059,496
1878	242	4,601,083	.....	4,600,841
1879	913,392	5,694,814	.....	4,781,422
1880	137,934	7,030,479	.....	6,892,545
1881	468,530	2,699,941	.....	2,231,411
1882	530,132	1,489,983	.....	959,851
1883	564,212	1,211,483	.....	647,271
1884	326,600	1,708,384	.....	1,381,784
1885	608,919	599,539	\$9,380	.....
1886	1,165,237	377,149	788,088	.....
1887	1,259,527	111,874	1,147,653	.....
1888	1,203,253	450,285	752,968	.....
1889	749,923	268,010	481,913	.....
1890	360,243	1,687,605	.....	1,327,362
1891	283,144	230,446	52,698	.....
1892	395,493	8,544,523	.....	8,149,030
1893	496,730	2,302,678	.....	1,805,948
1894	555,966	3,547,138	.....	2,991,172
1895	1,029,912	2,791,952	.....	1,762,040
1896	10,217,458	1,996,575	8,220,883	.....
1897	32,156,796	4,431,899	27,724,897	.....
1898	18,456,372	23,068,797	.....	4,612,425
1899	10,009,163	4,370,565	5,638,598	.....
1900	4,469,252	25,797,991	.....	21,328,739
1901	5,308,563	5,720,562	.....	411,999
1902	15,043,541	225,930	14,817,611	.....
1903	12,637,116	8,322,398	4,314,718	.....
Total	122,304,467	155,404,691	63,949,407	97,049,631

Value of SILVER COIN and BULLION imported into and exported from Japan since 1872.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1872	\$3,695,570	\$2,976,127	\$719,443	.....
1873	1,066,635	2,508,862	.....	\$1,442,227
1874	1,069,041	5,688,911	.....	4,619,870
1875	271,806	4,060,626	.....	3,788,820
1876	7,545,776	4,803,344	2,742,432	.....
1877	2,011,217	3,219,494	.....	1,208,277
1878	2,188,853	2,727,569	.....	538,711
1879	2,414,046	8,029,229	.....	5,615,183
1880	3,670,515	7,334,822	.....	3,664,307
1881	1,902,506	5,243,660	.....	3,341,154
1882	6,515,345	3,184,162	3,331,183	.....
1883	6,016,878	2,146,995	3,869,883	.....
1884	5,930,581	3,581,418	2,349,163	.....
1885	8,031,835	3,763,809	4,268,026	.....
1886	9,382,875	9,323,906	58,969	.....
1887	9,743,844	10,949,251	.....	1,205,407
1888	7,529,239	7,383,159	146,080	.....
1889	13,423,322	4,920,519	8,502,803	.....
1890	840,364	12,090,926	.....	11,250,562
1891	13,605,382	1,222,518	12,382,864	.....
1892	22,488,264	1,185,230	21,303,034	.....
1893	10,689,757	9,986,510	703,247	.....
1894	26,227,687	30,831,973	.....	4,604,286
1895	4,844,252	24,509,747	.....	19,665,495
1896	28,924,750	9,602,307	19,322,443	.....
1897	8,576,610	5,147,733	3,428,877	.....
1898	2,759,417	20,289,853	.....	17,530,436
1899	41,274	1,199,200	.....	1,157,926
1900	1,271,237	2,464,809	.....	1,193,572
1901	154,255	1,281,509	.....	1,127,254
1902	985,680	785,223	200,457	.....
1903	1,222,127	1,147,800	74,327	.....
Total	215,040,945	213,591,201	83,403,231	81,953,487

CHINA.

Value of GOLD COIN and BULLION imported into and exported from China since 1881.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1881	\$32,812,230	\$19,935,880	\$12,876,350	.....
1882	32,197,337	21,424,176	10,773,161	.....
1883	34,653,579	29,756,403	4,897,176	.....
1884	7,849,653	21,132,426	.....	\$13,782,773
1885	63,599,002	115,539,656	.....	51,940,654
Total	170,611,801	207,788,541	28,546,687	65,723,427

Value of SILVER COIN and BULLION imported into and exported from China since 1881.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1881	\$33,119,846	\$24,725,684	\$8,394,162	.....
1882	51,809,679	37,342,013	14,467,666	.....
1883	30,473,767	23,241,947	7,231,820	.....
1884	34,514,153	24,133,372	10,380,781	.....
1885	27,700,467	34,278,347	.....	\$6,577,880
Total	177,617,912	143,721,363	40,474,429	6,577,880

NOTE.—The above is United States silver-dollar coining value.

MEXICO.

Value of GOLD and SILVER COIN and BULLION imported into and exported from Mexico since 1879.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1879	\$21,835,872	.....	\$21,835,872
1880	22,388,576	.....	22,388,576
1881	19,567,144	.....	19,567,144
1882	17,337,024	.....	17,337,024
1883	30,103,064	.....	30,103,064
1884	34,008,568	.....	34,008,568
1885	34,314,384	.....	34,314,384
1886	30,384,496	.....	30,384,496
1887	34,097,976	.....	34,097,976
1888	31,502,096	.....	31,502,096
1889	39,405,560	.....	39,405,560
1890	41,847,008	.....	41,847,008
1891	20,912,328	.....	20,912,328
1892	49,250,763	.....	49,250,763
1893	51,769,745	.....	51,769,745
1894	47,320,215	.....	47,320,215
1895	56,781,075	.....	56,781,075
1896	44,919,693	.....	44,919,693
1897	77,877,391	.....	77,877,391
1898	1,189,171	74,999,509	.....	73,810,335
1899	65,533,961	.....	65,533,961
1900	86,933,639	.....	86,933,639
1901	2,279,875	60,028,200	.....	57,748,325
1902	3,457,994	79,458,153	.....	76,000,159
Total	6,927,043	1,072,576,440	.....	1,065,649,397

NOTE.—The above is United States silver-dollar coinage value.

ARGENTINA.

Value of GOLD and SILVER COIN and BULLION imported into and exported from Argentina since 1881.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1881	\$4,180,324	\$3,007,497	\$1,172,827	
1882	2,700,908	2,238,590	462,318	
1883	2,369,986	4,774,037		\$2,404,051
1884	4,778,903	4,389,583	389,320	
1885	6,136,657	8,219,519		2,082,862
1886	20,084,046	8,136,788	11,947,258	
1887	9,489,675	9,611,338		121,663
1888	43,613,573	8,501,776	35,111,797	
1889	11,436,275	27,670,919		16,234,644
1890	7,088,401	775,529	6,312,872	
1891	9,007,891	1,659,476	7,348,415	
1892	6,510,898	1,974,477	4,536,421	
1893	4,524,885	1,910,700	2,614,185	
1894	3,186,952	264,067	2,922,885	
1895	4,730,000	119,000	4,611,000	
1896	6,063,345	2,179,000	3,884,345	
1897	671,000	4,949,000		4,278,000
1898	7,298,901	1,572,772	5,726,129	
1899	10,202,854	3,526,032	6,676,822	
1899	10,202,854	3,526,032	6,676,822	
1900	2,383,120	2,376,270	6,850	
Total	166,458,594	97,856,370	93,723,444	25,121,220

CHILE.

Value of GOLD and SILVER COIN and BULLION imported into and exported from Chile since 1873.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1873	\$1,547,547	\$5,007,629		\$3,460,082
1874	126,529	4,326,319		4,199,790
1875	345,522	6,535,710		6,190,188
1876	330,922	5,061,160		4,730,238
1877	321,189	1,771,406		1,450,217
1878	180,060	1,851,137		1,674,077
1879	53,531	2,501,381		2,447,850
1880	43,799	4,676,707		4,632,908
1881	116,796	2,949,099		2,832,303
1882	29,199	3,990,530		3,961,331
1883	345,521	6,647,639		6,302,118
1884	58,398	6,214,521		6,156,123
1885	155,728	7,620,939		7,465,211
1886	311,456	7,509,010		7,197,554
1887	87,597	9,105,222		9,017,625
1888	199,527	8,895,962		8,696,435
1889	452,585	6,117,190		5,664,605
1890	199,527	5,645,140		5,445,613
1891	116,796	5,353,150		5,236,354
1892	162,336	5,713,680		5,551,344
1893	314,000	5,917,000		5,603,000
1894	272,524	5,635,407		5,362,883
1895	11,217,505	6,437,865	\$4,779,640	
1896	95,000	5,800,000		5,705,000
1897	41,000	4,887,000		4,846,000
Total	17,124,594	136,173,803	4,779,640	123,828,849

Value of GOLD COIN and BULLION imported into and exported from Chile.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1898		\$4, 591, 045		\$4, 591, 045
1899	\$2, 798	1, 826, 461		1, 823, 663
1900		1, 029, 300		1, 029, 300
1901		448, 489		448, 489

Value of SILVER COIN and BULLION imported into and exported from Chile.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1898		\$4, 061, 272		\$4, 061, 272
1899		1, 531, 409		1, 531, 409
1900		1, 114, 643		1, 114, 643
1901		996, 668		996, 668

CAPE COLONY.

Value of GOLD COIN and BULLION imported into and exported from Cape Colony since 1825.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1825-1865 a.....	\$16, 606, 980	\$5, 196, 147	\$11, 410, 833	
1866	48, 665	57, 872		\$9, 207
1867	170, 327	93, 252	77, 075	
1868	488, 363	57, 989	430, 374	
1869	121, 662	195, 448		73, 786
1870	968, 433	140, 505	827, 928	
1871	3, 220, 333	252, 143	2, 968, 190	
1872	8, 848, 416	303, 830	8, 544, 586	
1873	1, 511, 389	485, 087	1, 026, 302	
1874	810, 608	1, 211, 680		401, 072
1875	95, 758	880, 705		784, 947
1876	1, 303, 682	659, 747	643, 935	
1877	1, 376, 129	127, 721	1, 248, 408	
1878	2, 123, 575	372, 029	1, 751, 546	
1879	2, 825, 811	1, 274, 774	1, 551, 037	
1880	1, 798, 171	716, 436	1, 081, 735	
1881				
1882	1, 290, 737	249, 233	1, 041, 504	
1883				
1884				
1885	979, 914	1, 893, 818		913, 904
1886	842, 391	871, 970		29, 579
1887	3, 339, 378	228, 580	3, 110, 798	
1888		2, 516, 569		2, 516, 569
1889		12, 685, 544		12, 685, 544
1890	3, 649, 875	9, 132, 849		5, 482, 974
1891		12, 115, 726		12, 115, 726
1892	837	20, 927, 541		20, 926, 704
1893		25, 915, 276		25, 915, 276
1894	1, 143, 628	35, 838, 390		34, 694, 762
1895	27, 349, 779	40, 654, 318		13, 304, 539
1896	3, 990, 530	38, 944, 434		34, 953, 904
1897	487	66, 288, 232		66, 287, 745
1898		81, 606, 323		81, 606, 323
1899	20, 563, 659	73, 068, 702		52, 505, 043
1900	8, 663, 158	1, 842, 583	6, 820, 575	
1901	1, 461, 045	9, 549, 450		8, 088, 405
1902	106, 070	38, 672, 606		38, 566, 536
1903	884, 579	68, 229, 517		67, 344, 938
Total.....	116, 584, 369	553, 257, 026	42, 531, 826	479, 207, 483

a For the period.

Value of SILVER COIN and BULLION imported into and exported from Cape Colony since 1825.

Years.	Imports.	Exports.	Excess of imports over exports.	Excess of exports over imports.
1825-1865 <i>a</i>	\$1,367,389	\$587,240	\$780,149	.....
1866 .....	.....	9,387	.....	\$9,387
1867 .....	.....	9,991	.....	9,991
1868	487	8,331	.....	7,844
1869 .....	.....	6,395	.....	6,395
1870 .....	.....	23,554	.....	23,554
1871	52,072	12,531	39,541	.....
1872	837,524	49,940	787,584	.....
1873	164,716	18,186	146,530	.....
1874 .....	.....	30,182	.....	30,182
1875	56,680	23,130	33,550	.....
1876	26,016	7,504	18,512	.....
1877	74,477	10,375	64,102	.....
1878	2,998	501	2,497	.....
1879	15,621	638	14,983	.....
1880	278,899	3,100	275,799	.....
1881 .....	.....	.....	.....	.....
1882	109,594	17,734	91,860	.....
1883 .....	.....	.....	.....	.....
1884 .....	.....	.....	.....	.....
1885	89,329	202,285	.....	112,956
1886	2,433	127,176	.....	124,743
1887	239,485	82,791	156,691	.....
1888 .....	.....	.....	.....	.....
1889 .....	.....	.....	.....	.....
1890	297,830	35,263	262,567	.....
1891	51,098	768	50,330	.....
1892	20,488	429,164	.....	408,676
1893	228,725	452,122	.....	223,397
1894	529,047	344,383	184,664	.....
1895	386,463	243,082	143,381	.....
1896	806,184	65,440	740,744	.....
1897	297,479	159,529	137,950	.....
1898	476,722	164,507	312,215	.....
1899	450,930	232,916	218,014	.....
1900	1,526,067	37,214	1,488,853	.....
1901	902,512	26,829	875,683	.....
1902	811,888	3,533	808,355	.....
1903	257,993	338,285	.....	80,292
Total	10,361,146	3,764,009	7,634,554	1,037,417

a For the period.

XXIV.—COINAGE OF NATIONS.

Country.	1901.		1902.		1903.	
	Gold.	Silver.	Gold.	Silver.	Gold.	Silver.
United States.....	\$101,735,187	\$30,838,461	\$47,184,933	\$48,188,944	\$43,683,971	\$19,874,440
Philippine Islands.....						17,438,713
Abyssinia.....		91,059				272,014
Arabia.....				2,041		
Austria-Hungary.....	3,817,524	3,604,414	5,708,431	7,569,740	5,570,650	4,734,471
Belgium.....		579,000				
Bolivia.....		2,450,218				
Brazil.....			9,828			
British Empire:						
Australasia.....	48,228,115		55,541,989		54,106,054	
British Guiana.....		4,867				4,867
Canada.....		420,000		354,000		311,539
Ceylon.....				133,320		194,660
Great Britain.....	12,672,366	4,187,662	34,644,614	5,352,615	48,314,612	2,618,975
Honduras.....		10,000		10,000		
Hongkong.....		30,248,656		33,571,117		6,755,647
India.....		a 16,658,916		36,951,286		53,632,572
Newfoundland.....						15,000
Straits Settlements.....		600,000		750,000		15,842,891
Colombia.....				460,000		40,023
Crete.....		366,700				
Denmark.....						135,994
Ecuador.....				49,023		
Egypt.....		367,867				494,300
France.....	14,451,668	2,393,200	9,432,709	2,294,594	17,198,828	305,673
French colonies:						
Indo-China.....		3,876,984		4,936,448		10,778,311
Tunis.....	579,232		232	347	1,158,249	347
Germany.....	28,149,252	7,148,713	20,887,289	10,497,126	22,245,886	14,313,096
Colony of German East Africa.....		243,492		67,115		
Guatemala.....		3,000				
Italy.....		516,755	22,851	1,000,161	25,592	20,698
Japan.....	988,264	536,025	15,101,520	315,144	14,548,296	374,828
Korea.....		298,800		210,403		
Mexico.....	625,798	21,821,900	816,078	24,687,100	683,589	27,238,450
Monaco.....	295,116					
Morocco.....		117,084		338,506		4,337,146
Netherlands.....	465,807	1,376,850		220,100	207,736	361,800
Netherlands colonies:						
Curaçao.....		12,060				
Dutch East Indies.....		402,000				402,000
Norway.....		160,800	336,729	230,748		135,742
Persia.....	3,323	4,698,055	13,942	7,900,783	149,267	7,046,743
Peru.....	395,427	74,240	449,402	33,221	543,294	155,251
Portugal.....		611,506				421,200
Russia.....	31,527,256	3,681,185	26,447,649	3,323,037	27,740,593	4,042,190
Siam.....		85,687		2,551,929		11,576,827
Spain.....	No returns.			501,606		2,046,092
Sweden.....	1,932,915	72,603	610,022	135,827		201,776
Switzerland.....	1,930,000	115,800	2,316,000		77,200	386,000
Turkey.....	296,537	8,335	880,907	686,300	4,245,730	1,257,573
Venezuela.....		225,997		392,778		600,000
Total.....	248,093,787	138,911,891	220,405,125	193,715,362	240,499,547	208,367,849

a Fiscal year, rupees, calculated at \$0.3244.

XXV.—WORLD'S PRODUCTION OF GOLD AND SILVER FOR CALENDAR YEARS 1901, 1902, AND 1903.

Country.	1901.						
	Gold.			Silver.			
	Kilo-grams (fine).	Ounces (fine).	Value.	Kilo-grams (fine).	Ounces. (fine).	Coining value	Commer- cial value.
North America:							
United States.....	118,367	3,805,500	\$78,666,700	1,717,705	55,214,000	\$71,387,800	\$33,128,400
Mexico.....	15,475	497,527	10,284,800	1,793,692	57,656,549	74,545,900	34,593,900
Canada.....	36,305	1,167,216	24,128,500	163,099	5,242,697	6,778,400	3,145,600
Africa.....	13,677	439,704	9,089,500				
Australasia.....	115,679	3,719,080	76,880,200	318,256	10,230,016	13,226,700	6,138,000
Europe:							
Russia.....	34,383	1,105,412	22,850,900	4,884	156,993	203,000	94,200
Austria-Hungary..	3,215	103,363	2,136,700	62,118	1,996,706	2,581,600	1,198,000
Germany.....	90	2,893	59,800	171,778	5,521,648	7,139,100	3,313,000
Norway.....				5,161	165,902	214,500	99,500
Sweden.....	63	2,017	41,700	1,680	53,986	69,800	32,400
Italy.....	8	257	5,300	30,000	964,333	1,246,800	578,600
Spain.....	13	418	8,600	99,095	3,185,316	4,118,400	1,911,200
Portugal.....	2	63	1,300	^a 119	3,790	4,900	2,300
Greece.....				35,902	1,154,046	1,492,100	692,400
Turkey.....	37	1,185	24,500	13,352	429,180	554,900	257,500
Finland.....	2	63	1,300	^a 244	7,843	10,100	4,700
France.....				11,954	384,263	496,800	230,600
Great Britain.....	175	5,626	116,300	5,392	173,297	224,100	104,000
South America:							
Argentina.....	45	1,451	30,000	1,405	45,166	58,400	27,100
Bolivia.....	180	5,786	119,600	404,201	12,992,695	16,798,600	7,795,600
Chile.....	1,606	51,626	1,067,200	287,926	9,255,130	11,966,200	5,553,100
Colombia.....	4,215	135,513	2,801,300	58,537	1,881,649	2,432,800	1,129,000
Ecuador.....	165	5,321	110,000	^a 240	7,734	10,000	4,600
Brazil.....	4,176	134,260	2,775,400				
Venezuela.....	483	15,538	321,200				
Guiana (British) ..	2,666	85,701	1,771,600				
Guiana (Dutch)....	610	19,621	405,600				
Guiana (French) ..	^b 3,009	96,750	2,000,000				
Peru.....	865	27,825	575,200	110,965	3,566,868	4,611,700	2,140,100
Uruguay.....	47	1,530	31,700	^a 25	800	1,000	500
Central America.....	963	30,974	640,300	27,365	879,666	1,137,400	527,800
Asia:							
Japan.....	1,808	58,127	1,201,600	53,809	1,729,603	2,236,300	1,037,800
China.....	13,680	439,801	9,091,500				
Korea.....	4,514	145,125	3,000,000				
India (British)....	14,138	454,527	9,395,900				
East Indies (Brit- ish).....	1,296	41,685	861,700				
East Indies (Dutch)	748	24,042	497,000	3,465	111,377	144,000	66,800
Total.....	392,705	12,625,527	260,992,900	5,382,369	173,011,283	223,691,300	103,806,700

^a Figures for 1900 repeated.^b Estimate Bureau of the Mint.

WORLD'S PRODUCTION OF GOLD AND SILVER FOR THE CALENDAR YEAR 1902.

Country.	GOLD.			SILVER.			
	Kilo-grams (fine).	Ounces (fine).	Value.	Kilo-grams (fine).	Ounces (fine).	Coining value.	Commercial value.
North America:							
United States.....	120, 373	3, 870, 000	\$80, 000, 000	1, 726, 603	55, 500, 000	\$71, 757, 600	\$29, 415, 000
Mexico.....	15, 279	491, 156	10, 153, 100	1, 872, 091	60, 176, 604	77, 804, 100	31, 893, 600
Canada.....	32, 105	1, 032, 161	21, 336, 700	131, 387	4, 223, 304	5, 460, 400	2, 238, 300
Africa.....	58, 716	1, 887, 773	39, 023, 700				
Australasia.....	122, 749	3, 946, 374	81, 578, 800	249, 690	8, 026, 037	10, 377, 100	4, 253, 800
Europe:							
Russia.....	33, 905	1, 090, 053	22, 533, 400	4, 937	158, 679	205, 200	84, 100
Austria-Hungary..	3, 267	105, 037	2, 171, 300	58, 523	1, 881, 132	2, 432, 200	997, 000
Germany.....	94	3, 023	62, 500	178, 032	5, 722, 641	7, 399, 000	3, 033, 000
Norway.....	3	97	2, 000	6, 422	206, 413	266, 900	109, 400
Sweden.....	94	3, 023	62, 500	1, 439	46, 226	59, 800	24, 500
Italy.....	8	257	5, 300	30, 000	964, 339	1, 246, 800	511, 100
Spain.....	15	494	10, 200	115, 113	3, 700, 189	4, 784, 100	1, 961, 100
Portugal.....	2	63	1, 300	118	3, 773	4, 900	2, 000
Greece.....				33, 044	1, 062, 177	1, 373, 300	563, 000
Turkey.....	46	1, 480	30, 600	14, 949	480, 566	621, 300	254, 700
Finland.....	2	63	1, 300	269	8, 679	11, 200	4, 600
France.....				23, 250	747, 359	966, 300	396, 100
Great Britain.....	116	3, 737	77, 300	4, 551	146, 289	189, 200	77, 500
South America:							
Argentina.....	45	1, 451	30, 000	1, 174	37, 720	48, 800	20, 000
Bolivia.....	2	48	1, 000	279, 044	8, 969, 596	11, 597, 100	4, 753, 900
Chile.....	1, 003	32, 262	666, 900	54, 047	1, 737, 300	2, 246, 200	920, 890
Colombia.....	3, 796	122, 031	2, 522, 600	55, 269	1, 776, 604	2, 297, 000	941, 600
Ecuador.....	301	9, 675	200, 000	240	7, 736	10, 000	4, 100
Brazil.....	3, 159	101, 584	2, 099, 900				
Venezuela.....	653	20, 985	433, 800	58	1, 887	2, 400	1, 000
Guiana (British)...	2, 721	87, 491	1, 808, 600				
Guiana (Dutch)...	484	15, 577	322, 000				
Guiana (French)...	3, 642	117, 077	2, 420, 200				
Peru.....	3, 500	112, 525	2, 326, 100	132, 668	4, 264, 528	5, 513, 700	2, 260, 200
Uruguay.....	87	2, 796	57, 800	24	755	1, 000	400
Central America.....	3, 012	96, 842	2, 001, 900	30, 217	971, 320	1, 255, 800	514, 800
Asia:							
Japan.....	1, 936	62, 259	1, 287, 000	12, 151	390, 567	505, 000	207, 000
China.....	13, 138	422, 401	8, 731, 800				
Korea.....	4, 514	145, 125	3, 000, 000				
British India.....	14, 428	463, 824	9, 588, 100				
East Indies (British).....	1, 545	49, 686	1, 027, 100				
East Indies (Dutch).....	713	22, 930	474, 000	3, 793	121, 919	157, 600	64, 600
Total.....	445, 453	14, 321, 360	296, 048, 800	5, 019, 103	161, 334, 339	208, 594, 000	85, 507, 200

WORLD'S PRODUCTION OF GOLD AND SILVER FOR THE CALENDAR YEAR 1903.

Country.	GOLD.			SILVER.			
	Kilo-grams (fine).	Ounces (fine.)	Value.	Kilo-grams (fine).	Ounces (fine).	Coining value.	Commercial value.
North America:							
United States.....	110,731	3,560,000	\$73,591,700	1,689,270	54,300,000	\$70,206,000	\$29,322,000
Mexico.....	16,066	516,524	10,677,500	2,193,249	70,499,942	91,151,400	38,070,000
Canada.....	28,340	911,118	18,834,500	97,984	3,149,591	4,072,200	1,700,800
Africa.....	102,314	3,289,409	67,998,100	10,677	343,214	443,800	185,300
Australasia.....	134,231	4,315,538	89,210,100	301,233	9,682,856	12,519,300	5,228,700
Europe:							
Russia.....	37,063	1,191,582	24,632,200	4,724	151,835	196,300	82,000
Austria-Hungary..	3,378	108,609	2,245,100	50,524	1,624,048	2,099,800	877,000
Germany.....	106	3,412	70,500	181,136	5,822,452	7,528,000	3,144,100
Norway.....	4	129	2,700	6,158	197,928	255,900	106,900
Sweden.....	51	1,640	33,900	1,061	34,117	44,100	18,400
Italy.....	40	1,291	26,700	25,085	806,335	1,042,500	435,400
Spain.....	8	262	5,400	127,267	4,090,876	5,289,200	2,209,100
Portugal.....	2	63	1,300				
Greece.....				33,044	1,062,177	1,373,300	573,600
Turkey.....	31	999	20,700	14,274	458,830	593,200	247,800
Finland.....	3	96	2,000	299	9,618	12,400	5,200
France.....				23,250	747,359	966,300	403,600
Great Britain.....	116	3,737	77,300	4,551	146,289	189,200	79,000
South America:							
Argentina.....	45	1,451	30,000	2,880	92,592	119,700	50,000
Bolivia.....	2	48	1,000	279,044	8,969,596	11,597,100	4,843,600
Chile.....	1,004	32,262	666,900	80,804	2,597,355	3,358,200	1,402,600
Colombia.....	4,100	131,795	2,724,400	35,117	1,128,799	1,459,500	609,500
Ecuador.....	413	13,272	274,400				
Brazil.....	3,422	110,016	2,274,200				
Venezuela.....	127	4,087	84,500				
Guiana—							
British.....	2,424	77,948	1,611,300				
Dutch.....	566	18,183	375,900				
French.....	3,162	101,658	2,101,500				
Peru.....	892	28,669	592,600	54,339	1,746,674	2,258,300	943,200
Uruguay.....	77	2,491	51,500				
Central America...	2,822	90,716	1,875,300	65,831	2,116,063	2,735,900	1,142,700
Asia:							
Japan.....	3,013	96,881	2,002,700	16,875	542,428	701,300	292,900
China.....	11,021	354,334	7,324,700				
Korea.....	4,514	145,125	3,000,000				
India (British)....	17,197	552,873	11,428,900				
East Indies—							
British.....	1,770	56,899	1,176,200				
Dutch.....	755	24,261	501,500	3,817	122,696	158,700	66,200
Total.....	489,810	15,747,378	325,527,200	5,302,493	170,443,670	220,371,600	92,039,600

XXVI.—PRODUCTION OF GOLD AND SILVER IN

[From 1493 to 1885 is from a table of averages for certain periods, compiled by Dr. Adolph Soetbeer;

	Period.	GOLD.			
		Average annual for period.		Total for period.	
		Fine ounces.	Value.	Fine ounces.	Value.
1	1493-1520.....	186, 470	\$3, 855, 000	5, 221, 160	\$107, 931, 000
2	1521-1544.....	230, 194	4, 759, 000	5, 524, 656	114, 205, 000
3	1545-1560.....	273, 596	5, 656, 000	4, 377, 544	90, 492, 000
4	1561-1580.....	219, 906	4, 546, 000	4, 398, 120	90, 917, 000
5	1581-1600.....	237, 267	4, 905, 000	4, 745, 340	98, 095, 000
6	1601-1620.....	273, 918	5, 662, 000	5, 478, 360	113, 248, 000
7	1621-1640.....	266, 845	5, 516, 000	5, 336, 900	110, 324, 000
8	1641-1660.....	281, 955	5, 828, 000	5, 639, 110	116, 571, 000
9	1661-1680.....	297, 709	6, 154, 000	5, 954, 180	123, 084, 000
10	1681-1700.....	346, 095	7, 154, 000	6, 921, 895	143, 088, 000
11	1701-1720.....	412, 163	8, 520, 000	8, 243, 260	170, 403, 000
12	1721-1740.....	613, 422	12, 681, 000	12, 268, 440	253, 611, 000
13	1741-1760.....	791, 211	16, 356, 000	15, 824, 230	327, 116, 000
14	1761-1780.....	665, 666	13, 761, 000	13, 313, 315	275, 211, 000
15	1781-1800.....	571, 948	11, 823, 000	11, 438, 970	236, 464, 000
16	1801-1810.....	571, 563	11, 815, 000	5, 715, 627	118, 152, 000
17	1811-1820.....	367, 957	7, 606, 000	3, 679, 568	76, 063, 000
18	1821-1830.....	457, 041	9, 448, 000	4, 570, 444	94, 479, 000
19	1831-1840.....	652, 291	13, 481, 000	6, 522, 913	134, 841, 000
20	1841-1850.....	1, 760, 502	36, 393, 000	17, 605, 018	363, 928, 000
21	1851-1855.....	6, 410, 324	132, 513, 000	32, 051, 621	662, 566, 000
22	1856-1860.....	6, 486, 262	134, 083, 000	32, 431, 312	670, 415, 000
23	1861-1865.....	5, 949, 582	122, 989, 000	29, 747, 913	614, 944, 000
24	1866-1870.....	6, 270, 086	129, 614, 000	31, 350, 430	648, 071, 000
25	1871-1875.....	5, 591, 014	115, 577, 000	27, 955, 068	577, 883, 000
26	1876-1880.....	5, 543, 110	114, 586, 000	27, 715, 550	572, 931, 000
27	1881-1885.....	4, 794, 755	99, 116, 000	23, 973, 773	495, 582, 000
28	1886-1890.....	5, 461, 282	112, 895, 000	27, 306, 411	564, 474, 000
29	1891-1895.....	7, 882, 565	162, 947, 000	39, 412, 823	814, 736, 000
30	1896.....	9, 783, 914	202, 251, 600	9, 783, 914	202, 251, 600
31	1897.....	11, 420, 068	236, 073, 700	11, 420, 068	236, 073, 700
32	1898.....	13, 877, 806	286, 879, 700	13, 877, 806	286, 879, 700
33	1899.....	14, 837, 775	306, 724, 100	14, 837, 775	306, 724, 100
34	1900.....	12, 315, 135	254, 576, 300	12, 315, 135	254, 576, 300
35	1901.....	12, 625, 527	260, 992, 900	12, 625, 527	260, 992, 900
36	1902.....	14, 321, 360	296, 048, 800	14, 321, 360	296, 048, 800
37	1903.....	15, 747, 378	325, 527, 200	15, 747, 378	325, 527, 200
	Total.....			529, 652, 914	10, 948, 899, 300

THE WORLD SINCE THE DISCOVERY OF AMERICA.

for the years 1886 to 1903 the production is the annual estimate of the Bureau of the Mint.]

SILVER.				PERCENTAGE OF PRODUCTION.			
Annual average for period.		Total for period.		By weight.		By value.	
Fine ounces.	Coining value.	Fine ounces.	Coining value.	Gold.	Silver.	Gold.	Silver.
1, 511, 050	\$1, 954, 000	42, 309, 400	\$54, 703, 000	11	89	66.4	33.6
2, 899, 930	3, 740, 000	69, 598, 320	89, 986, 000	7.4	92.6	55.9	44.1
10, 017, 910	12, 952, 000	160, 287, 040	207, 240, 000	2.7	97.3	30.4	69.6
9, 628, 925	12, 450, 000	192, 578, 500	248, 990, 000	2.2	97.8	26.7	73.3
13, 467, 635	17, 443, 000	269, 352, 700	348, 254, 000	1.7	98.3	22	78
13, 596, 235	17, 579, 000	271, 924, 700	351, 579, 000	2	98	21.4	75.6
12, 654, 240	16, 361, 000	253, 084, 800	327, 221, 000	2.4	97.9	25.2	74.8
11, 776, 545	15, 226, 000	235, 530, 900	304, 525, 000	2.3	97.7	27.7	72.3
10, 834, 550	14, 008, 000	216, 691, 000	280, 166, 000	2.7	97.3	30.5	69.5
10, 992, 085	14, 212, 000	219, 841, 700	281, 240, 000	3.1	96.9	33.5	66.5
11, 432, 540	14, 781, 000	228, 650, 800	295, 629, 000	3.5	96.5	36.6	63.4
13, 863, 080	17, 924, 000	277, 261, 600	358, 480, 000	4.2	95.8	41.4	58.6
17, 140, 612	22, 162, 000	342, 812, 235	443, 232, 000	4.4	95.6	42.5	57.5
20, 985, 591	27, 133, 000	419, 711, 820	542, 658, 000	3.1	96.9	33.7	66.3
28, 261, 779	36, 540, 000	565, 235, 580	730, 810, 000	2	98	21.4	75.6
28, 746, 922	37, 168, 000	287, 469, 225	371, 677, 000	1.9	98.1	24.1	75.9
47, 385, 755	22, 479, 000	173, 857, 555	224, 786, 000	2.1	97.9	25.3	74.7
44, 807, 004	49, 144, 000	148, 070, 010	191, 444, 000	3	97	33	67
19, 175, 867	24, 793, 000	191, 758, 675	247, 930, 000	3.3	96.7	35.2	64.8
25, 090, 342	32, 440, 000	250, 903, 422	324, 400, 000	6.6	93.4	52.9	47.1
28, 488, 597	36, 824, 000	142, 442, 986	184, 169, 000	18.4	81.6	78.3	21.7
29, 095, 428	37, 618, 000	145, 477, 142	188, 092, 000	18.2	81.8	78.4	21.9
35, 401, 972	45, 772, 000	177, 009, 862	228, 861, 000	14.4	85.6	72.9	27.1
43, 051, 583	55, 663, 000	215, 257, 914	278, 313, 000	12.7	87.3	70	30
63, 317, 014	81, 864, 000	316, 585, 069	409, 322, 000	8.1	91.9	58.5	41.5
78, 775, 602	101, 851, 000	393, 878, 009	509, 256, 000	6.6	93.4	53	47
92, 003, 944	118, 955, 000	460, 019, 722	594, 773, 000	5	95	45.5	54.5
108, 911, 431	140, 815, 000	544, 557, 155	704, 074, 000	4.8	95.2	44.5	55.5
157, 581, 331	203, 742, 000	787, 906, 656	1, 018, 708, 000	4.8	95.2	44.4	55.6
157, 061, 370	203, 069, 200	157, 061, 370	203, 069, 200	5.9	94.1	49.9	50.1
160, 424, 082	207, 413, 000	160, 421, 082	207, 413, 000	6.7	93.3	53.2	46.8
169, 055, 253	218, 576, 800	169, 055, 253	218, 576, 800	7.6	92.4	56.8	43.2
168, 337, 453	217, 648, 200	168, 337, 453	217, 648, 200	8.1	91.9	58.5	41.5
173, 011, 364	221, 441, 200	173, 591, 364	224, 441, 200	6.6	93.4	53.2	46.8
173, 011, 283	223, 691, 300	173, 011, 283	223, 691, 300	6.8	93.2	52.7	47.3
161, 334, 339	208, 594, 000	161, 334, 339	208, 594, 000	8.2	91.8	58.7	41.3
170, 443, 670	220, 371, 600	170, 443, 670	220, 371, 600	8.5	91.5	59.6	40.4
		9, 333, 320, 341	12, 067, 323, 300	5.4	94.6	47.6	52.4

XXVII.—COINAGE OF THE MINTS OF THE UNITED STATES, FROM THEIR ORGANIZATION, 1792, TO DECEMBER 31, 1903.

Denomination.	Pieces.	Value.
GOLD.		
Double eagles.....	83,336,686	\$1,666,733,720.00
Eagles.....	37,838,491	378,384,910.00
Half eagles.....	59,957,597	299,787,985.00
Three-dollar pieces (coinage discontinued, act of Sept. 26, 1890).....	539,792	1,619,376.00
Quarter eagles.....	12,072,660	30,181,650.00
Dollars (coinage discontinued, act of Sept. 26, 1890).....	19,499,337	19,499,337.00
Dollars, Louisiana Purchase Exposition (act of June 28, 1902).....	250,258	250,258.00
Total gold.....	213,494,821	2,396,457,236.00
SILVER.		
Dollars (coinage discontinued, act of Feb. 12, 1873; resumed, act of Feb. 28, 1878).....	569,491,198	569,491,198.00
Trade dollars (authorized Feb. 12, 1873; discontinued, act of Feb. 19, 1887).....	35,965,924	35,965,924.00
Lafayette souvenir dollars (act of Mar. 3, 1899).....	50,000	50,000.00
Half dollars.....	317,942,249	158,971,124.50
Half dollars, Columbian souvenir (act of Aug. 5, 1892).....	5,002,105	2,501,052.50
Quarter dollars.....	305,870,383	76,467,595.75
Quarter dollars, Columbian souvenir (act of Mar. 3, 1893).....	40,023	10,005.75
Twenty-cent pieces (authorized Mar. 3, 1875; discontinued, act of May 2, 1878).....	1,355,000	271,000.00
Dimes.....	434,765,614	45,476,561.40
Half dimes (discontinued, act of Feb. 12, 1873).....	97,604,388	4,880,219.40
Three-cent pieces (discontinued, act of Feb. 12, 1873).....	42,736,240	1,282,087.20
Total silver.....	1,810,823,124	895,366,768.50
MINOR.		
Five-cent pieces, nickel (authorized, act of May 16, 1866).....	462,110,779	23,105,538.95
Three-cent pieces, nickel (discontinued, act of Sept. 26, 1890).....	31,378,316	941,349.48
Two-cent pieces, bronze (discontinued, act of Sept. 26, 1890).....	45,601,000	912,020.00
One-cent pieces, copper (discontinued, act of Feb. 21, 1857).....	156,288,744	1,562,887.44
One-cent pieces, nickel (discontinued, act of Apr. 22, 1864).....	200,772,000	2,007,720.00
One-cent pieces, bronze (authorized, act of Apr. 22, 1864).....	1,296,596,317	12,965,963.17
Half-cent pieces, copper (discontinued, act of Feb. 21, 1857).....	7,985,222	39,926.11
Total minor.....	2,200,732,378	41,535,405.15
Total coinage.....	4,225,050,323	3,333,359,409.65
Silver-dollar coinage under act of Apr. 2, 1792.....		\$8,031,238
Silver-dollar coinage under Bland-Allison Act, Feb. 28, 1878.....	\$378,166,793	
Silver-dollar coinage under Sherman Act, July 14, 1890, to Oct. 31, 1893.....	\$36,087,285	
Coinage from repeal of purchasing clause (Nov. 1, 1893) of Sherman Act of June 12, 1898.....	42,139,872	
Coined under war-revenue bill approved June 13, 1898, to Dec. 31, 1903.....	99,987,538	
Act of Mar. 3, 1891, recoinage of trade dollars.....	178,214,695	
	5,078,472	
Total.....		561,459,960
Total.....		569,491,198

XXVIII.—COINAGE OF SILVER DOLLARS, FRACTIONAL AND SUBSIDIARY SILVER, BY ACTS AND DENOMINATIONS, FROM 1792 TO 1903.

Denomination.	1792 to 1853.	1853 to Feb. 12, 1873.	Feb. 12, 1873, to Dec. 31, 1903.	Total silver.
Dollars.....	\$2, 506, 890. 00	\$5, 524, 348. 00	\$561, 459, 960. 00	\$569, 491, 198. 00
Trade dollars.....			35, 965, 924. 00	35, 965, 924. 00
Lafayette souvenir dollars.....			50, 026. 00	50, 026. 00
Total dollars.....	2, 506, 890. 00	5, 524, 348. 00	597, 475, 910. 00	605, 507, 148. 00
Half dollars.....	66, 280, 610. 50	32, 666, 832. 50	60, 023, 651. 50	158, 971, 121. 50
Half dollars, Columbian.....			2, 501, 052. 50	2, 501, 052. 50
Quarter dollars.....	3, 994, 040. 50	17, 879, 790. 50	54, 593, 761. 75	76, 467, 595. 75
Quarter dollars, Columbian.....			10, 005. 75	10, 005. 75
Twenty-cent pieces.....			271, 000. 00	271, 000. 00
Dimes.....	3, 890, 230. 10	4, 908, 520. 00	36, 677, 811. 30	45, 476, 561. 40
Half dimes.....	1, 825, 126. 40	3, 055, 093. 00		4, 880, 219. 40
Three-cent pieces.....	744, 927. 00	537, 160. 20		1, 282, 087. 20
Total subsidiary.....	76, 734, 964. 50	59, 047, 396. 20	151, 077, 285. 80	289, 859, 646. 50
Total silver.....	79, 241, 854. 50	61, 571, 744. 20	751, 553, 195. 80	895, 366, 794. 50

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Philadelphia from

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
1793 to 1795		\$27,950	\$43,535			
1796		60,800	16,995		\$165.00	
1797		91,770	32,030		4,390.00	
1798		79,740	124,335		1,535.00	
1799		174,830	37,255		1,200.00	
1800		259,650	58,110			
1801		292,540	130,030			
1802		150,900	265,880		6,530.00	
1803		89,790	167,530		1,057.50	
1804		97,950	152,375		8,317.50	
1805			165,915		4,452.50	
1806			320,465		4,040.00	
1807			420,465		17,030.00	
1808			277,890		6,775.00	
1809			169,375			
1810			501,435			
1811			497,905			
1812			290,435			
1813			477,140			
1814			77,270			
1815			3,175			
1816						
1817						
1818			242,940			
1819			258,615			
1820			1,319,030			
1821			173,205		16,120.00	
1822			88,980			
1823			72,425			
1824			86,700		6,500.00	
1825			145,300		11,085.00	
1826			90,345		1,900.00	
1827			124,565		7,000.00	
1828			140,145			
1829			287,210		8,507.50	
1830			631,755		11,350.00	
1831			702,970		11,300.00	
1832			787,435		11,000.00	
1833			968,150		10,400.00	
1834			3,660,845		293,425.00	
1835			1,857,670		328,505.00	
1836			2,765,735		1,369,965.00	
1837			1,035,605		112,700.00	
1838		72,000	1,432,940		117,575.00	
1839		382,480	590,715		67,552.50	
1840		473,380	686,910		47,147.50	
1841		631,310	79,165			
1842		815,070	137,890		7,057.50	
1843		754,620	3,056,025		251,365.00	
1844		63,610	1,701,650		16,960.00	
1845		261,530	2,085,495		227,627.50	
1846		200,950	1,979,710		53,995.00	
1847		8,622,580	4,579,905		74,535.00	
1848		1,454,840	1,303,875		22,215.00	
1849		6,536,180	665,350		58,235.00	\$688,567
1850	\$23,405,220	2,914,510	322,455		632,307.50	481,953
1851	41,743,100	1,763,280	1,887,525		3,431,870.00	3,317,671
1852	41,060,520	2,631,060	2,869,505		2,899,202.50	2,045,351
1853	25,226,520	2,012,530	1,528,850		3,511,670.00	4,076,051
1854	15,157,980	542,500	803,375	\$415,854	1,490,645.00	1,639,445
1855	7,293,320	1,217,010	585,490	151,665	588,700.00	758,269
1856	6,597,560	604,900	989,950	78,030	960,600.00	1,762,936
1857	8,787,500	166,060	490,940	62,673	535,325.00	774,789
1858	4,234,280	25,210	75,680	6,399	118,442.50	117,995
1859	871,940	160,930	84,070	46,914	98,610.00	168,244
1860	11,553,400	117,830	99,125	21,465	56,687.50	36,668
1861	59,529,060	1,132,330	3,199,750	18,216	3,181,295.00	527,499
1862	1,842,660	109,950	22,325	17,355	280,882.50	1,326,865
1863	2,855,800	12,480	12,360	15,117	75.00	6,250
1864	4,085,700	35,800	21,100	8,040	7,185.00	5,950
1865	7,024,000	40,050	6,475	3,495	3,862.50	3,725
Carried forward.....	261,268,560	35,080,900	50,967,775	845,223	20,996,875.00	17,738,228

NOTE.—Not susceptible of exact statement by years of actual date of coin, the registry of annual coinage being of coin delivered by coiners of mints within the given year, and these deliveries not having been invariably completed within the year of the date of the coin, as now required.

FROM THEIR ORGANIZATION, BY CALENDAR YEARS.

its organization, 1793, to December 31, 1903.]

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
.....	\$204,791	\$161,572.00	.....	.....	.....	\$4,320.80	.....
.....	72,920	.....	\$1,473.50	.....	\$2,213.50	511.50	.....
.....	7,776	1,959.00	63.00	.....	2,526.10	2,226.35	.....
.....	327,536	.....	.....	.....	2,755.00	.....	.....
.....	423,515	.....	.....	.....	.....	.....	.....
.....	220,920	.....	.....	.....	2,176.00	1,200.00	.....
.....	54,454	15,144.50	.....	.....	3,464.00	1,695.50	.....
.....	41,650	14,945.00	.....	.....	1,097.50	650.50	.....
.....	66,064	15,857.50	.....	.....	3,304.00	1,892.50	.....
.....	19,570	78,259.50	1,684.50	.....	826.50	.....	.....
.....	321	105,861.00	30,348.50	.....	12,078.00	780.00	.....
.....	.....	419,788.00	51,531.00	.....	.....	.....	.....
.....	.....	525,788.00	55,160.75	.....	16,500.00	.....	.....
.....	.....	684,300.00	.....	.....	.....	.....	.....
.....	.....	702,905.00	.....	.....	4,471.00	.....	.....
.....	.....	638,138.00	.....	.....	635.50	.....	.....
.....	.....	601,822.00	.....	.....	6,518.00	.....	.....
.....	.....	814,029.50	.....	.....	.....	.....	.....
.....	.....	620,951.50	.....	.....	.....	.....	.....
.....	.....	519,537.50	.....	.....	42,150.00	.....	.....
.....	.....	.....	17,308.00	.....	.....	.....	.....
.....	.....	23,575.00	5,000.75	.....	.....	.....	.....
.....	.....	607,783.50	.....	.....	.....	.....	.....
.....	.....	980,161.00	90,293.50	.....	.....	.....	.....
.....	.....	1,104,000.00	36,000.00	.....	.....	.....	.....
.....	.....	375,561.00	31,861.00	.....	94,258.70	.....	.....
.....	.....	652,898.50	54,212.75	.....	118,651.20	.....	.....
.....	.....	779,786.50	16,020.00	.....	10,000.00	.....	.....
.....	.....	847,100.00	4,450.00	.....	44,000.00	.....	.....
.....	.....	1,752,477.00	.....	.....	.....	.....	.....
.....	.....	1,471,583.00	42,000.00	.....	51,000.00	.....	.....
.....	.....	2,002,090.00	.....	.....	.....	.....	.....
.....	.....	2,746,700.00	1,000.00	.....	121,500.00	.....	.....
.....	.....	1,537,600.00	25,500.00	.....	12,500.00	.....	.....
.....	.....	1,856,078.00	.....	.....	77,000.00	61,500.00	.....
.....	.....	2,382,400.00	.....	.....	51,000.00	62,000.00	.....
.....	.....	2,936,830.00	99,500.00	.....	77,135.00	62,135.00	.....
.....	.....	2,398,500.00	80,000.00	.....	52,250.00	48,250.00	.....
.....	.....	2,603,000.00	39,000.00	.....	48,500.00	68,500.00	.....
.....	.....	3,206,002.00	71,500.00	.....	63,500.00	74,000.00	.....
.....	.....	2,676,003.00	488,000.00	.....	141,000.00	138,000.00	.....
.....	1,000	3,273,100.00	118,000.00	.....	119,000.00	95,000.00	.....
.....	.....	1,814,910.00	63,100.00	.....	104,200.00	113,800.00	.....
.....	.....	1,773,000.00	208,000.00	.....	199,250.00	112,750.00	.....
.....	300	1,667,280.00	122,786.50	.....	105,311.50	53,457.50	.....
.....	61,005	717,504.00	47,031.75	.....	135,858.00	67,204.25	.....
.....	173,000	155,000.00	30,000.00	.....	162,250.00	57,500.00	.....
.....	184,618	1,006,382.00	22,000.00	.....	188,750.00	40,750.00	.....
.....	165,100	1,922,000.00	161,400.00	.....	137,000.00	58,250.00	.....
.....	20,000	883,000.00	105,300.00	.....	7,250.00	21,500.00	.....
.....	24,500	294,500.00	230,500.00	.....	175,500.00	78,200.00	.....
.....	110,600	1,105,000.00	127,500.00	.....	3,130.00	1,350.00	.....
.....	140,750	578,000.00	183,500.00	.....	24,500.00	63,700.00	.....
.....	15,000	290,000.00	36,500.00	.....	45,150.00	33,400.00	.....
.....	62,600	626,000.00	85,000.00	.....	83,900.00	65,450.00	.....
.....	7,500	113,500.00	47,700.00	.....	193,150.00	47,750.00	.....
.....	1,300	100,375.00	40,000.00	.....	102,650.00	39,050.00	\$16,422.00
.....	1,100	38,565.00	44,265.00	.....	153,550.00	50,025.00	559,905.00
.....	46,110	1,766,354.00	3,813,555.00	.....	1,217,301.00	667,251.00	342,000.00
.....	33,140	1,491,000.00	3,095,000.00	.....	447,000.00	287,000.00	20,130.00
.....	26,000	379,750.00	714,250.00	.....	207,500.00	87,500.00	4,170.00
.....	63,500	469,000.00	1,816,000.00	.....	578,000.00	244,000.00	43,740.00
.....	94,000	994,000.00	2,411,000.00	.....	558,000.00	364,000.00	31,260.00
.....	.....	2,113,000.00	1,842,000.00	.....	154,000.00	175,000.00	48,120.00
.....	256,500	374,000.00	336,000.00	.....	43,000.00	17,000.00	10,950.00
.....	218,930	151,850.00	201,350.00	.....	60,700.00	39,950.00	8,610.00
.....	78,500	1,444,200.00	1,213,650.00	.....	192,400.00	164,050.00	14,940.00
.....	12,090	126,175.00	233,137.50	.....	84,755.00	74,627.50	10,906.50
.....	27,660	251,830.00	48,015.00	.....	1,446.00	923.00	643.80
.....	31,170	189,785.00	23,517.50	.....	3,907.00	23.50	14.10
.....	47,000	255,950.00	14,825.00	.....	1,050.00	675.00	255.00
.....	3,342,490	65,225,996.50	18,676,790.50	.....	6,552,468.50	3,648,798.90	1,259,066.40

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Philadelphia from

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
Brought forward	\$261,268,560	\$35,080,900	\$50,967,775	\$845,223	\$20,996,875.00	\$17,738,228
1866.....	13,975,500	37,800	33,600	12,090	7,775.00	7,180
1867.....	5,021,300	31,400	34,600	7,950	8,125.00	5,250
1868.....	1,972,000	106,550	28,625	14,625	9,062.50	10,525
1869.....	3,503,100	18,550	8,925	7,575	10,862.50	5,925
1870.....	3,103,700	25,350	20,175	10,605	11,387.50	6,335
1871.....	1,603,000	17,800	16,150	3,990	13,375.00	3,930
1872.....	5,037,600	16,500	8,450	6,090	7,575.00	3,530
1873.....	34,196,500	8,250	562,525	75	445,062.50	125,125
1874.....	7,336,000	531,600	17,540	125,460	9,850.00	198,820
1875.....	5,914,800	1,200	1,100	60	1,050.00	420
1876.....	11,678,100	7,320	7,385	135	10,552.50	3,245
1877.....	7,953,400	8,170	5,760	4,464	4,130.00	3,920
1878.....	10,872,900	733,000	658,700	246,972	715,650.00	3,020
1879.....	4,152,600	3,847,700	1,509,750	9,090	222,475.00	3,030
1880.....	1,029,120	16,448,760	15,832,180	3,108	7,490.00	1,636
1881.....	45,200	38,772,600	28,544,000	1,650	1,700.00	7,660
1882.....	12,600	23,244,800	12,572,800	4,620	10,100.00	5,040
1883.....	800	2,077,400	1,167,200	2,820	4,900.00	10,840
1884.....	1,420	769,050	955,240	3,318	4,982.50	6,206
1885.....	16,560	2,535,270	3,007,530	2,730	2,217.50	12,205
1886.....	22,120	2,361,600	1,942,160	3,426	10,220.00	6,016
1887.....	2,420	536,800	435	18,480	15,705.00	8,543
1888.....	4,525,320	1,329,960	91,480	15,873	40,245.00	16,080
1889.....	882,220	44,850	37,825	7,287	44,120.00	30,729
1890.....	1,519,900	580,430	21,640	.....	22,032.50	.....
1891.....	28,840	918,680	307,065	.....	27,600.00	.....
1892.....	90,460	7,975,520	3,767,860	.....	6,362.50	.....
1893.....	6,886,780	18,408,950	7,640,985	.....	75,265.00	.....
1894.....	27,379,800	24,707,780	4,789,775	.....	10,305.00	.....
1895.....	22,293,120	5,678,260	6,729,680	.....	15,297.50	.....
1896.....	15,853,260	763,480	295,315	.....	48,005.00	.....
1897.....	27,665,220	10,001,590	4,339,415	.....	74,760.00	.....
1898.....	3,409,400	8,121,970	3,167,475	.....	60,412.50	.....
1899.....	33,387,680	12,623,050	8,553,645	.....	68,375.00	.....
1900.....	37,491,680	2,939,600	7,028,650	.....	168,012.50	.....
1901.....	2,230,520	17,188,250	3,080,200	.....	228,307.50	.....
1902.....	625,080	825,130	862,810	.....	334,332.50	° 75,080
1903.....	5,748,560	1,259,260	1,135,120	.....	503,142.50	° 175,178
Total	568,737,140	240,600,130	169,751,545	1,357,716	24,257,697.50	18,473,696

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

its organization, 1793, to December 31, 1903.]

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
.....	\$3,342,490	\$65,225,996.50	\$18,676,790.50	.....	\$6,552,468.50	\$3,648,798.90	\$1,259,066.40
.....	49,625	372,812.50	4,381.25	.....	872.50	536.25	681.75
.....	60,325	212,162.50	5,156.25	.....	662.50	431.25	138.75
.....	182,700	189,100.00	7,500.00	.....	46,625.00	4,295.00	123.00
.....	424,300	397,950.00	4,150.00	.....	25,660.00	10,430.00	153.00
.....	433,000	300,450.00	21,850.00	.....	47,150.00	26,830.00	120.00
.....	1,115,760	582,680.00	42,808.00	.....	75,361.00	74,443.00	127.80
.....	1,106,450	440,775.00	45,737.50	.....	239,645.00	147,397.50	58.50
\$397,500	293,600	1,308,750.00	371,075.00	.....	394,710.00	35,630.00	18.00
987,800	.....	1,180,150.00	117,975.00	.....	294,070.00	.....	.....
218,900	.....	3,013,750.00	1,073,375.00	\$7,940	1,035,070.00	.....	.....
456,150	.....	4,209,575.00	4,454,287.50	3,180	1,146,115.00	.....	.....
3,039,710	.....	4,152,255.00	2,727,927.50	102	731,051.00	.....	.....
900	10,509,550	689,200.00	565,200.00	120	167,880.00	.....	.....
1,541	14,807,100	2,950.00	3,675.00	.....	1,510.00	.....	.....
1,987	12,601,355	4,877.50	3,738.75	.....	3,735.50	.....	.....
960	9,163,975	5,487.50	3,243.75	.....	2,497.50	.....	.....
1,097	11,101,100	2,750.00	4,075.00	.....	391,110.00	.....	.....
979	12,291,039	4,519.50	3,859.75	.....	767,571.20	.....	.....
.....	14,070,875	2,637.50	2,218.75	.....	336,638.00	.....	.....
.....	17,787,767	3,065.00	3,632.50	.....	253,342.70	.....	.....
.....	19,963,886	2,943.00	1,471.50	.....	637,757.00	.....	.....
.....	20,290,710	2,855.00	2,677.50	.....	1,128,393.90	.....	.....
.....	19,183,833	6,416.50	2,708.25	.....	549,648.70	.....	.....
.....	21,726,811	6,355.50	3,177.75	.....	738,071.10	.....	.....
.....	16,802,590	6,295.00	20,147.50	.....	991,154.10	.....	.....
.....	8,694,206	100,300.00	980,150.00	.....	1,531,060.00	.....	.....
.....	1,037,245	^a 942,622.50	2,059,311.25	.....	1,212,124.50	.....	.....
.....	378,792	^b 2,939,448.50	^c 1,371,203.75	.....	334,079.20	.....	.....
.....	110,972	574,486.00	858,243.00	.....	133,097.20	.....	.....
.....	12,880	917,609.00	1,110,220.00	.....	69,088.00	.....	.....
.....	9,976,762	475,381.00	968,690.50	.....	200,076.20	.....	.....
.....	2,822,731	1,240,365.50	2,035,182.75	.....	1,086,926.40	.....	.....
.....	5,884,735	1,478,367.50	2,775,183.75	.....	1,632,073.50	.....	.....
.....	330,846	2,769,423.00	3,156,211.50	.....	1,958,084.60	.....	.....
.....	^d 8,850,912	2,381,456.00	2,504,228.00	.....	1,760,091.20	.....	.....
.....	6,962,813	2,134,406.50	2,223,203.25	.....	1,886,047.80	.....	.....
.....	7,994,777	2,461,388.50	3,049,436.00	.....	2,138,077.70	.....	.....
.....	4,652,755	1,139,377.50	2,417,516.00	.....	1,950,075.50	.....	.....
5,107,524	265,049,267	101,881,390.00	53,681,619.25	11,342	32,449,672.00	3,948,791.90	1,260,487.20

^a Includes Columbian souvenir half dollars, 1892, \$475,000.^b Includes Columbian souvenir half dollars, 1893, \$2,026,052.50.^c Includes Columbian souvenir quarter dollars, 1893, \$10,005.75.^d Includes 50,000 Lafayette souvenir dollars.^e Louisiana Purchase Exposition.

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Philadelphia from

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
1793-1795			
1796			
1797			
1798			
1799			
1800			
1801			
1802			
1803			
1804			
1805			
1806			
1807			
1808			
1809			
1810			
1811			
1812			
1813			
1814			
1815			
1816			
1817			
1818			
1819			
1820			
1821			
1822			
1823			
1824			
1825			
1826			
1827			
1828			
1829			
1830			
1831			
1832			
1833			
1834			
1835			
1836			
1837			
1838			
1839			
1840			
1841			
1842			
1843			
1844			
1845			
1846			
1847			
1848			
1849			
1850			
1851			
1852			
1853			
1854			
1855			
1856			
1857			
1858			
1859			
1860			
1861			
1862			
1863			
1864			\$396,950.00
1865		\$341,460.00	272,800.00
1866	\$737,125.00	144,030.00	63,540.00
1867	1,545,475.00	117,450.00	58,775.00
1868	1,440,850.00	97,560.00	56,075.00
1869	819,750.00	48,120.00	30,930.00
Carried forward.....	4,543,200.00	748,620.00	879,070.00

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

its organization, 1793, to December 31, 1903.]

MINOR COINAGE.		TOTAL COINAGE.			TOTAL VALUE.
Cents.	Half cents.	Gold.	Silver.	Minor.	
\$10,660.33	\$712.67	\$71,485.00	\$370,683.80	\$11,373.00	\$453,541.80
9,747.00	577.40	77,960.00	77,118.50	10,324.40	165,402.90
8,975.10	535.24	128,190.00	14,550.45	9,510.34	152,250.79
9,797.00	-----	205,610.00	330,291.00	9,797.00	545,698.00
9,045.85	60.83	213,285.00	423,515.00	9,106.68	645,906.68
28,221.75	1,057.65	317,760.00	224,296.00	29,279.40	571,335.40
13,628.37	-----	422,570.00	74,758.00	13,628.37	510,956.37
34,351.00	71.83	423,310.00	58,343.00	34,422.83	516,075.83
24,713.53	489.50	258,377.50	87,118.00	25,203.03	370,698.53
7,568.38	5,276.56	258,642.50	100,340.50	12,844.94	371,827.94
9,411.16	4,072.32	170,367.50	149,388.50	13,483.48	333,239.48
3,480.00	1,780.00	324,505.00	471,319.00	5,260.00	801,084.00
7,272.21	2,380.00	437,495.00	597,448.75	9,652.21	1,044,595.96
11,090.00	2,000.00	284,665.00	684,300.00	13,090.00	982,055.00
2,228.67	5,772.86	169,375.00	707,376.00	8,001.53	884,752.53
14,585.00	1,075.00	501,435.00	638,773.50	15,660.00	1,155,868.50
2,180.25	315.70	497,905.00	608,340.00	2,495.95	1,108,740.95
10,755.00	-----	290,435.00	814,029.50	10,755.00	1,115,219.50
4,180.00	-----	477,140.00	620,951.50	4,180.00	1,102,271.50
3,578.30	-----	77,270.00	561,687.50	3,578.30	642,535.80
-----	-----	3,175.00	17,308.00	-----	20,483.00
28,209.82	-----	-----	28,575.75	28,209.82	56,785.57
39,484.00	-----	-----	607,783.50	39,484.00	647,267.50
31,670.00	-----	242,940.00	1,070,454.50	31,670.00	1,345,064.50
26,710.00	-----	258,615.00	1,140,000.00	26,710.00	1,425,325.00
44,075.50	-----	1,319,030.00	501,680.70	44,075.50	1,864,786.20
3,890.00	-----	189,325.00	825,762.45	3,890.00	1,018,977.45
20,723.39	-----	88,930.00	805,806.50	20,723.39	915,509.89
-----	-----	72,425.00	895,550.00	-----	967,975.00
12,620.00	-----	93,200.00	1,752,477.00	12,620.00	1,858,297.00
14,611.00	315.00	156,385.00	1,564,583.00	14,926.00	1,735,894.00
15,174.25	1,170.00	92,245.00	2,002,090.00	16,344.25	2,110,679.25
23,577.32	-----	131,565.00	2,869,200.00	23,577.32	3,024,342.32
22,606.24	3,030.00	140,145.00	1,575,600.00	25,636.24	1,741,381.24
14,145.00	2,435.00	295,717.50	1,994,578.00	16,580.00	2,306,875.50
17,115.00	-----	643,105.00	2,495,400.00	17,115.00	3,155,620.00
33,592.60	11.00	714,270.00	3,175,600.00	33,603.60	3,923,473.60
23,620.00	-----	798,435.00	2,579,000.00	23,620.00	3,401,055.00
27,390.00	770.00	978,550.00	2,759,000.00	28,160.00	3,765,710.00
18,551.00	600.00	3,954,270.00	3,415,002.00	19,151.00	7,388,423.00
38,784.00	705.00	2,186,175.00	3,443,003.00	39,489.00	5,668,667.00
21,110.00	1,990.00	4,135,700.00	3,606,100.00	23,100.00	7,764,900.00
55,583.00	-----	1,148,305.00	2,096,010.00	55,583.00	3,299,898.00
63,702.00	-----	1,622,515.00	2,293,000.00	63,702.00	3,979,217.00
31,286.61	-----	1,040,747.50	1,949,135.50	31,286.61	3,021,169.61
24,627.00	-----	1,207,437.50	1,028,603.00	24,627.00	2,260,667.50
15,973.67	-----	710,475.00	577,750.00	15,973.67	1,304,198.67
23,833.90	-----	960,017.50	1,442,500.00	23,833.90	2,426,351.40
24,283.20	-----	4,062,010.00	2,443,750.00	24,283.20	6,530,043.20
23,987.52	-----	1,782,220.00	1,037,050.00	23,987.52	2,843,257.52
38,948.04	-----	2,574,652.50	803,200.00	38,948.04	3,416,800.54
41,208.00	-----	2,234,655.00	1,347,580.00	41,208.00	3,623,443.00
61,836.69	-----	13,277,020.00	990,450.00	61,836.69	14,329,306.69
64,157.99	-----	2,780,930.00	420,050.00	64,157.99	3,265,137.99
41,785.00	199.32	7,948,332.00	922,950.00	41,984.32	8,913,266.32
44,268.44	199.06	27,756,445.50	409,600.00	44,467.50	28,210,513.00
98,897.07	738.36	52,143,446.00	446,797.00	99,635.43	52,689,878.43
50,630.94	-----	51,505,638.50	847,410.00	50,630.94	52,403,679.44
66,411.31	648.47	36,355,621.00	7,852,571.00	67,059.78	44,275,251.78
42,361.56	276.79	20,049,799.00	5,373,270.00	42,638.35	25,465,707.35
15,748.29	282.50	10,594,454.00	1,419,170.00	16,030.79	12,029,654.79
26,904.63	202.15	10,993,976.00	3,214,240.00	27,106.78	14,235,322.78
177,834.56	175.90	10,817,287.00	4,452,260.00	178,010.46	15,447,557.46
246,000.00	-----	4,578,006.50	4,332,120.00	246,000.00	9,156,126.50
364,000.00	-----	1,430,708.00	1,037,450.00	364,000.00	2,832,158.00
205,660.00	-----	11,885,175.50	681,390.00	205,660.00	12,772,225.50
101,000.00	-----	67,588,150.00	3,107,740.00	101,000.00	70,796,890.00
280,750.00	-----	3,600,037.50	541,691.50	280,750.00	4,422,479.00
498,400.00	-----	2,902,082.00	330,517.80	498,400.00	3,730,999.80
529,737.14	-----	4,163,775.00	248,417.10	926,687.14	5,338,879.24
354,292.86	-----	7,081,607.50	319,755.00	968,552.86	8,369,915.36
98,265.00	-----	14,073,945.00	428,909.25	1,042,960.00	15,545,814.25
98,210.00	-----	5,108,625.00	278,876.25	1,819,910.00	7,207,411.25
102,665.00	-----	2,141,387.50	430,343.00	1,697,150.00	4,268,880.50
64,200.00	-----	3,554,937.50	862,643.00	963,000.00	5,380,580.50
4,680,577.44	39,926.11	411,776,456.00	100,706,382.30	10,891,393.55	523,374,231.85

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Philadelphia from

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
Brought forward.....	\$4,543,200.00	\$748,620.00	\$879,070.00
1870.....	240,300.00	40,050.00	17,225.00
1871.....	28,050.00	18,120.00	14,425.00
1872.....	301,800.00	25,860.00	1,300.00
1873.....	227,500.00	35,190.00	.....
1874.....	176,900.00	23,700.00	.....
1875.....	104,850.00	6,840.00	.....
1876.....	126,500.00	4,860.00	.....
1877.....	.....	.....	.....
1878.....	117.50	70.50	.....
1879.....	1,455.00	1,236.00	.....
1880.....	997.75	748.65	.....
1881.....	3,618.75	32,417.25	.....
1882.....	573,830.00	759.00	.....
1883.....	1,148,471.05	318.27	.....
1884.....	563,697.10	169.26	.....
1885.....	73,824.50	143.70	.....
1886.....	166,514.50	128.70	.....
1887.....	763,182.60	238.83	.....
1888.....	536,024.15	1,232.49	.....
1889.....	794,068.05	646.83	.....
1890.....	812,963.60	.....	.....
1891.....	841,717.50	.....	.....
1892.....	584,982.10	.....	.....
1893.....	668,509.75	.....	.....
1894.....	270,656.60	.....	.....
1895.....	498,994.20	.....	.....
1896.....	442,146.00	.....	.....
1897.....	1,021,436.75	.....	.....
1898.....	626,604.35	.....	.....
1899.....	1,301,451.55	.....	.....
1900.....	1,362,799.75	.....	.....
1901.....	1,324,010.65	.....	.....
1902.....	1,574,028.95	.....	.....
1903.....	1,400,336.25	.....	.....
Total.....	23,105,538.95	941,349.48	912,020.00

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

its organization, 1793, to December 31, 1903.]

MINOR COINAGE.		TOTAL COINAGE.			TOTAL VALUE.
Cents.	Half cents.	Gold.	Silver.	Minor.	
\$4,680,577.44	\$39,926.11	\$411,776,456.00	\$100,706,382.30	\$10,891,393.55	\$523,374,231.85
52,750.00	3,177,552.50	829,400.00	350,325.00	4,357,277.50
39,295.00	1,658,245.00	1,891,179.80	99,890.00	3,649,314.80
40,420.00	5,079,745.00	1,980,063.50	369,380.00	7,429,188.50
116,765.00	35,337,537.50	2,801,283.00	379,455.00	38,518,275.50
141,875.00	8,219,270.00	2,579,995.00	342,475.00	11,141,740.00
135,280.00	5,918,630.00	5,349,035.00	246,970.00	11,514,635.00
79,440.00	11,706,737.50	10,269,307.50	210,800.00	22,186,845.00
8,525.00	7,979,844.00	10,651,045.50	8,525.00	18,639,414.50
57,998.50	13,235,242.00	11,932,850.00	58,186.50	25,226,278.50
162,312.00	9,744,645.00	14,816,776.00	165,003.00	24,726,424.00
389,649.55	33,322,294.00	12,615,693.75	391,395.95	46,329,383.70
392,115.75	67,372,810.00	9,176,163.75	428,151.75	76,977,125.50
385,811.00	35,849,960.00	11,500,132.00	960,400.00	48,310,492.00
455,981.09	3,273,960.00	13,067,968.45	1,604,770.41	17,946,698.86
232,617.42	1,740,216.50	14,412,369.25	796,483.78	16,949,069.53
117,653.84	5,576,512.50	18,047,807.20	191,622.04	23,815,941.74
176,542.90	4,345,542.00	20,606,057.50	343,186.10	25,294,785.60
452,264.83	582,383.00	21,424,636.40	1,215,686.26	23,222,705.66
374,944.14	6,018,958.00	19,74,606.45	912,200.78	26,673,765.23
488,693.61	1,047,031.00	22,474,415.35	1,283,408.49	24,804,854.84
571,828.54	2,144,002.50	17,820,186.60	1,384,792.14	21,348,981.24
470,723.50	1,282,185.00	11,305,716.00	1,312,441.00	13,900,342.00
376,498.32	11,840,202.50	5,251,303.25	961,480.42	18,052,986.17
466,421.95	33,011,980.00	5,023,523.45	1,134,931.70	39,170,435.15
167,521.32	56,887,660.00	1,676,798.20	438,177.92	59,002,636.12
383,436.36	34,716,357.50	2,109,797.00	882,430.56	37,708,585.06
390,572.93	16,960,060.00	11,620,909.70	832,718.93	29,413,688.63
504,663.30	42,080,985.00	7,185,205.65	1,526,100.05	50,792,290.70
498,230.79	14,759,257.50	11,770,359.75	1,124,835.14	27,654,452.39
536,000.31	54,632,750.00	8,214,565.10	1,837,451.86	64,684,766.96
668,337.64	47,627,942.50	15,526,687.20	2,031,137.39	65,185,767.09
796,111.43	22,727,277.50	13,206,470.55	2,120,122.08	38,053,870.13
873,767.22	2,722,432.50	15,643,679.20	2,447,796.17	20,813,907.87
850,944.93	8,821,260.50	10,159,724.00	2,251,281.18	21,232,265.68
16,536,570.61	39,926.11	1,023,177,924.50	463,390,093.35	41,535,405.15	1,528,103,423.00

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at San Francisco

Calendar years.	GOLD.						SILVER.	
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	Dollars.	Trade dollars.
1854.....	\$2,829,360	\$1,238,260	\$1,340		\$615	\$14,632		
1855.....	17,593,500	90,000	305,000	\$19,800				
1856.....	23,795,000	680,000	525,500	103,500	177,800	24,600		
1857.....	19,410,000	260,000	435,000	42,000	170,000	10,000		
1858.....	16,934,200	118,000	93,000		3,000	10,000		
1859.....	12,728,900	70,000	66,100		38,000	15,000	\$20,000	
1860.....	10,899,000	50,000	106,000	21,000	89,000	13,000		
1861.....	15,360,000	155,000	90,000		60,000			
1862.....	17,083,460	125,000	47,500		20,000			
1863.....	19,331,400	100,000	85,000		27,000			
1864.....	15,873,200	25,000	19,440					
1865.....	20,850,000	167,000	138,060		58,440			
1866.....	16,845,000	200,000	219,600		97,400			
1867.....	18,415,000	90,000	145,000		70,000			
1868.....	16,750,000	135,000	260,000		85,000			
1869.....	13,735,000	64,300	155,000		73,750			
1870.....	19,640,000	80,000	85,000		40,000	3,000		
1871.....	18,560,000	165,000	125,000		55,000			
1872.....	15,600,000	173,000	182,000		45,000		9,000	
1873.....	20,812,000	120,000	155,000		67,500		700	\$703,000
1874.....	24,280,000	100,000	80,000					2,549,000
1875.....	24,600,000		45,000		29,000			4,487,000
1876.....	31,940,000	50,000	20,000		12,500			5,227,000
1877.....	34,700,000	170,000	133,500		88,500			9,519,000
1878.....	34,780,000	261,000	723,500		445,000		9,774,000	4,162,000
1879.....	24,476,000	2,240,000	2,131,000		108,750		9,110,000	
1880.....	16,720,000	5,062,500	6,744,500				8,900,000	
1881.....	14,540,000	9,700,000	4,845,000				12,760,000	
1882.....	22,500,000	1,320,000	4,845,000				9,250,000	
1883.....	23,780,000	380,000	416,000				6,250,000	
1884.....	18,320,000	1,242,500	885,000				3,200,000	
1885.....	13,670,000	2,280,000	6,057,500				1,497,000	
1886.....		8,260,000	16,340,000				750,000	
1887.....	5,660,000	8,170,000	9,560,000				1,771,000	
1888.....	17,192,000	6,487,000	1,469,500				657,000	
1889.....	15,491,000	4,254,000					700,000	
1890.....	16,055,000						8,230,373	
1891.....	25,762,500						5,296,000	
1892.....	18,603,000	1,155,000	1,492,000				1,200,000	
1893.....	19,923,500	1,413,500	1,120,000				100,000	
1894.....	20,971,000	250,000	279,500				1,260,000	
1895.....	22,870,000	490,000	560,000				400,000	
1896.....	28,078,500	1,237,500	777,000				5,000,000	
1897.....	29,405,000	2,347,500	1,770,000				5,825,000	
1898.....	51,503,500	4,736,000	6,987,000				4,102,000	
1899.....	40,206,000	8,410,000	7,725,000				2,562,000	
1900.....	49,190,000	810,000	1,645,000				3,540,000	
1901.....	31,920,000	28,127,500	18,240,000				2,284,000	
1902.....	35,072,500	4,695,000	4,695,000				1,530,000	
1903.....	19,080,000	5,380,000	9,275,000				1,241,000	
Total	1,064,337,520	113,134,560	112,099,540	186,300	1,861,255	90,232	107,219,073	26,647,000

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

from its organization, 1854, to December 31, 1903.]

SILVER.					TOTAL COINAGE.		TOTAL VALUE.
Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Gold.	Silver.	
					\$4,084,207		\$4,084,207.00
\$61,975.00	\$99,100.00				18,008,300	\$164,075.00	18,172,375.00
105,500.00	71,500.00		\$7,000.00		25,306,400	184,000.00	25,490,400.00
79,000.00	20,500.00				20,327,000	99,500.00	20,426,500.00
238,000.00	30,250.00		6,000.00		17,112,200	274,250.00	17,432,450.00
283,000.00	20,000.00		6,000.00		12,918,000	329,000.00	13,247,000.00
236,000.00	14,000.00		14,000.00		11,178,000	264,000.00	11,442,000.00
469,750.00	24,000.00		17,250.00		15,665,000	511,000.00	16,176,000.00
676,000.00	16,750.00		18,075.00		17,275,960	710,825.00	17,986,785.00
458,000.00			15,750.00	\$5,000	19,543,400	478,750.00	20,022,150.00
329,000.00	5,000.00		23,000.00	4,500	15,917,640	361,500.00	16,279,140.00
337,500.00	10,250.00		17,500.00	6,000	21,213,500	371,250.00	21,584,750.00
527,000.00	7,000.00		13,500.00	6,000	17,362,000	553,500.00	17,915,500.00
598,000.00	12,000.00		14,000.00	6,000	18,720,000	630,000.00	19,350,000.00
580,000.00	24,000.00		26,000.00	14,000	17,230,000	644,000.00	17,874,000.00
328,000.00	19,000.00		45,000.00	11,500	14,028,050	403,500.00	14,431,550.00
502,000.00			5,000.00		19,848,000	507,000.00	20,355,000.00
1,089,000.00	7,725.00		32,000.00	8,050	18,905,000	1,136,775.00	20,041,775.00
290,000.00	20,750.00		19,000.00	41,850	16,000,000	380,600.00	16,380,600.00
116,500.00	39,000.00		45,500.00	16,200	21,154,500	920,900.00	22,075,400.00
197,000.00	98,000.00		24,000.00		24,460,000	2,868,000.00	27,328,000.00
1,600,000.00	170,000.00	\$231,000	907,000.00		24,674,000	7,395,000.00	32,069,000.00
2,264,000.00	2,149,000.00		1,042,000.00		32,022,500	10,682,000.00	42,704,500.00
2,678,000.00	2,249,000.00		234,000.00		35,092,000	14,680,000.00	49,772,000.00
6,000.00	35,000.00				36,209,500	13,977,000.00	50,186,500.00
					28,955,750	9,110,000.00	38,065,750.00
					28,527,000	8,900,000.00	37,427,000.00
					29,085,000	12,760,000.00	41,845,000.00
					28,665,000	9,250,000.00	37,915,000.00
					24,576,000	6,250,000.00	30,826,000.00
			56,496.90		20,447,500	3,256,496.90	23,703,996.90
			4,369.00		22,007,500	1,501,369.00	23,508,869.00
			20,652.40		24,600,000	770,652.40	25,370,652.40
			445,445.00		23,390,000	2,216,445.00	25,606,445.00
	304,000.00		172,000.00		25,148,500	1,133,000.00	26,281,500.00
			97,267.80		19,748,000	797,267.80	20,545,267.80
			142,307.60		16,055,000	8,372,680.60	24,427,680.60
	554,000.00		319,611.60		25,762,500	6,169,611.60	31,932,111.60
514,514.00	241,019.75		99,071.00		21,250,000	2,054,604.75	23,304,604.75
370,000.00	363,633.75		249,140.10		22,457,000	1,082,773.85	23,539,773.85
2,024,345.00	662,205.25		2.40		21,500,500	3,946,552.65	25,447,052.65
554,043.00	441,170.25		112,000.00		23,920,000	1,507,213.25	25,427,213.25
570,474.00	47,009.75		57,505.60		30,093,000	5,674,989.35	35,767,989.35
466,950.00	135,557.25		134,284.40		33,522,500	6,561,791.65	40,084,291.65
1,179,275.00	255,148.00		170,250.70		63,226,500	5,706,673.70	68,933,173.70
843,205.50	177,000.00		186,749.30		56,341,000	3,768,954.80	60,109,954.80
1,280,161.00	464,646.25		516,827.00		51,645,000	5,801,634.25	57,446,634.25
423,522.00	18,166.00		59,302.20		78,287,500	2,784,990.20	81,072,490.20
730,335.00	381,153.00		207,000.00		44,462,500	2,848,488.00	47,310,988.00
960,386.00	259,000.00		61,330.00		33,735,000	2,521,716.00	36,256,716.00
23,969,435.50	9,445,534.25	231,000	5,643,188.00	119,100	1,291,709,407	173,274,330.75	1,464,983,737.75

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at New Orleans from its organization, 1838, to

Calendar years.	GOLD.						SILVER.
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	Dollars.
1838							
1839					\$44,452.50		
1840			\$152,000		65,500.00		
1841		\$25,000	41,750		18,450.00		
1842		274,000	82,000		49,500.00		
1843		1,751,620	505,375		920,005.00		
1844		1,187,000	1,823,000				
1845		475,000	205,000				
1846		817,800	290,000		165,000.00		\$59,000
1847		5,715,000	60,000		310,000.00		
1848		358,500					
1849		239,000				\$215,000	
1850	\$2,820,000	575,000			210,000.00	14,000	40,000
1851	6,300,000	2,630,000	205,000		370,000.00	290,000	
1852	3,800,000	180,000			350,000.00	140,000	
1853	1,420,000	510,000				290,000	
1854	65,000	525,000	230,000	\$72,000	382,500.00		
1855	160,000	180,000	55,500			55,000	
1856	45,000	145,000	50,000		52,750.00		
1857	600,000	55,000	65,000		85,000.00		
1858	705,000	200,000					
1859	182,000	23,000					360,000
1860	132,000	111,000					515,000
1861 ^a	100,000						
1879	46,500	15,000					2,887,000
1880		92,000					5,305,000
1881		83,500					5,708,000
1882		108,200					6,090,000
1883		8,000					8,725,000
1884							9,730,000
1885							9,185,000
1886							10,710,000
1887							11,550,000
1888		213,350					12,150,000
1889							11,875,000
1890							10,701,000
1891							7,954,529
1892		286,880	50,000				2,744,000
1893		170,000	550,000				300,000
1894		1,075,000	83,000				1,723,000
1895		980,000					450,000
1896							4,900,000
1897		425,000					4,004,000
1898							4,440,000
1899		370,470					12,290,000
1900							12,590,000
1901		720,410					13,320,000
1902							8,636,000
1903		1,127,710					4,450,000
Total.....	16,375,500	21,652,440	4,447,625	72,000	3,023,157.50	1,004,000	183,391,529

^a No coinage from 1862 to 1878, inclusive.

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

its suspension, 1861, and from its reopening, 1879, to December 31, 1903.]

SILVER.					TOTAL COINAGE.		TOTAL VALUE.
Half dollars.	Quarter dollars.	Dimes.	Half dimes.	Three cents.	Gold.	Silver.	
		\$40,243.40				\$40,243.40	\$40,243.40
\$81,488		124,327.20	\$54,827.50		\$44,452.50	260,642.70	305,095.20
427,550	\$106,300	117,500.00	46,750.00		217,500.00	698,100.00	915,600.00
200,500	113,000	200,750.00	40,750.00		85,200.00	555,000.00	640,200.00
478,500	192,250	202,000.00	17,500.00		405,500.00	890,250.00	1,295,750.00
1,134,000	242,000	15,000.00			3,177,000.00	1,391,000.00	4,568,000.00
1,002,500	185,000		11,000.00		3,010,000.00	1,198,500.00	4,208,500.00
1,047,000		23,000.00			680,000.00	1,070,000.00	1,750,000.00
1,152,000					1,272,800.00	1,211,000.00	2,483,800.00
1,292,000	92,000				6,085,000.00	1,384,000.00	7,469,000.00
1,590,000			30,000.00		358,500.00	1,620,000.00	1,978,500.00
1,155,000		30,000.00	7,000.00		454,000.00	1,192,000.00	1,646,000.00
1,228,000	103,000	51,000.00	34,500.00		3,619,000.00	1,456,500.00	5,075,500.00
201,000	22,000	40,000.00	43,000.00	\$21,600	9,795,000.00	327,600.00	10,122,600.00
72,000	24,000	43,000.00	13,000.00		4,470,000.00	152,000.00	4,622,000.00
664,000	333,000	110,000.00	118,000.00		2,220,000.00	1,225,000.00	3,445,000.00
2,620,000	371,000	177,000.00	78,000.00		1,274,500.00	3,246,000.00	4,520,500.00
1,844,000	44,000		30,000.00		450,500.00	1,918,000.00	2,368,500.00
1,329,000	242,000	118,000.00	55,000.00		292,750.00	1,744,000.00	2,036,750.00
409,000	295,000	154,000.00	69,000.00		805,000.00	927,000.00	1,732,000.00
3,647,000	130,000	29,000.00	83,000.00		905,000.00	3,889,000.00	4,794,000.00
1,417,000	65,000	48,000.00	28,000.00		205,000.00	1,918,000.00	2,123,000.00
645,000	97,000	4,000.00	53,000.00		243,000.00	1,314,000.00	1,557,000.00
165,000					100,000.00	165,000.00	265,000.00
					61,500.00	2,887,000.00	2,948,500.00
					92,000.00	5,305,000.00	5,397,000.00
					83,500.00	5,708,000.00	5,791,500.00
					108,200.00	6,090,000.00	6,198,200.00
					8,000.00	8,725,000.00	8,733,000.00
						9,730,000.00	9,730,000.00
						9,185,000.00	9,185,000.00
						10,710,000.00	10,710,000.00
						11,550,000.00	11,550,000.00
					213,350.00	12,150,000.00	12,363,350.00
						11,875,000.00	11,875,000.00
						10,701,000.00	10,701,000.00
	17,000	454,000.00				8,425,529.00	8,425,529.00
195,000	660,000	384,170.00			336,880.00	3,983,170.00	4,320,050.00
694,500	849,000	176,000.00			720,000.00	2,019,500.00	2,739,500.00
1,069,000	713,000	72,000.00			1,158,000.00	3,577,000.00	4,735,000.00
883,000	704,000	44,000.00			980,000.00	2,081,000.00	3,061,000.00
462,000	371,000	61,000.00				5,794,000.00	5,794,000.00
316,000	353,700	66,600.00			425,000.00	4,740,300.00	5,165,300.00
437,000	467,000	213,000.00				5,557,000.00	5,557,000.00
862,000	661,000	265,000.00			370,470.00	14,078,000.00	14,448,470.00
1,372,000	854,000	201,000.00				15,017,000.00	15,017,000.00
562,000	403,000	562,000.00			720,410.00	14,847,000.00	15,567,410.00
1,263,000	1,187,000	450,000.00				11,536,000.00	11,536,000.00
1,050,000	875,000	818,000.00			1,127,710.00	7,193,000.00	8,320,710.00
32,967,038	10,771,250	5,293,590.60	812,327.50	21,600	46,574,722.50	233,257,335.10	279,832,057.60

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Carson City,

Calendar years.	GOLD.			SILVER.	
	Double eagles.	Eagles.	Half eagles.	Dollars.	Trade dollars.
1870.....	\$75, 780	\$59, 080	\$38, 375	\$12, 462	.....
1871.....	293, 740	71, 850	103, 850	1, 376	.....
1872.....	593, 000	55, 000	84, 900	3, 150	.....
1873.....	448, 200	45, 430	37, 080	2, 300	\$124, 500
1874.....	2, 301, 700	167, 670	105, 990	.....	1, 373, 200
1875.....	2, 223, 020	77, 150	59, 140	.....	1, 573, 700
1876.....	2, 768, 820	46, 960	34, 435	.....	509, 000
1877.....	851, 300	33, 320	43, 400	.....	534, 000
1878.....	263, 600	32, 440	45, 270	2, 212, 000	97, 000
1879.....	214, 160	17, 620	86, 405	756, 000	.....
1880.....	.....	111, 900	255, 085	591, 000	.....
1881.....	.....	240, 150	69, 430	296, 000	.....
1882.....	782, 800	67, 640	414, 085	1, 133, 000	.....
1883.....	1, 199, 240	120, 000	64, 790	1, 204, 000	.....
1884.....	1, 622, 780	99, 250	82, 010	1, 136, 000	.....
1885.....	189, 000	.....	.....	228, 000	.....
1886 ^a.....	.....	.....	.....	.....	.....
1887 ^a.....	.....	.....	.....	.....	.....
1888 ^a.....	.....	.....	.....	.....	.....
1889 ^b	618, 900	.....	.....	350, 000	.....
1890.....	1, 824, 180	175, 000	269, 000	2, 309, 041	.....
1891.....	100, 000	1, 037, 320	1, 040, 000	1, 618, 000	.....
1892.....	545, 300	400, 000	414, 840	1, 352, 000	.....
1893 ^c	368, 040	140, 000	300, 000	677, 000	.....
Total.....	17, 283, 560	2, 997, 780	3, 548, 085	13, 881, 329	4, 211, 400

^a Coinage suspended. ^b Operations resumed October 1, 1889.

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

[Coinage of the mint at Charlotte, N. C., from its organization, 1838, to its suspension, 1861.]

Calendar years.	GOLD.			TOTAL VALUE.
	Half eagles.	Quarter eagles.	Dollars.	
1838.....	\$64, 565	\$19, 770.00	.....	\$84, 335.00
1839.....	117, 335	45, 432.50	.....	162, 767.50
1840.....	95, 140	32, 095.00	.....	127, 235.00
1841.....	107, 555	25, 742.50	.....	133, 297.50
1842.....	137, 400	16, 842.50	.....	154, 242.50
1843.....	221, 765	65, 240.00	.....	287, 005.00
1844 ^a	118, 155	29, 055.00	.....	147, 210.00
1845 ^b.....	.....	.....	.....	.....
1846.....	64, 975	12, 020.00	.....	76, 995.00
1847.....	420, 755	58, 065.00	.....	478, 820.00
1848.....	322, 360	41, 970.00	.....	364, 330.00
1849.....	324, 115	25, 550.00	\$11, 634	361, 299.00
1850.....	317, 955	22, 870.00	6, 966	347, 791.00
1851.....	245, 580	37, 307.50	41, 267	324, 451.50
1852.....	362, 870	24, 430.00	9, 434	396, 734.00
1853.....	327, 855	.....	11, 515	339, 370.00
1854.....	196, 455	18, 237.50	4	214, 696.50
1855.....	198, 940	9, 192.50	9, 803	217, 935.50
1856.....	142, 285	19, 782.50	.....	162, 067.50
1857.....	156, 800	.....	13, 280	170, 080.00
1858.....	194, 280	22, 640.00	.....	216, 920.00
1859.....	159, 235	.....	5, 235	164, 470.00
1860.....	74, 065	18, 672.50	.....	92, 737.50
1861.....	34, 395	.....	.....	34, 395.00
Total.....	4, 405, 135	544, 915.00	109, 138	5, 059, 188.00

^a Mint burned July 27, 1844. ^b No coinage.

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

from its organization, 1870, to June 30, 1893.]

SILVER.				TOTAL COINAGE.		TOTAL VALUE.
Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Gold.	Silver.	
\$27,308.50	\$2,085.00	.....	.....	\$173,235	\$41,855.50	\$215,090.50
69,975.00	2,722.50	.....	\$2,010.00	469,440	76,083.50	545,523.50
136,000.00	2,275.00	.....	2,400.00	732,900	143,825.00	876,725.00
168,530.00	4,115.50	.....	3,119.10	530,710	302,564.60	833,274.60
29,500.00	.....	.....	1,081.70	2,575,360	1,403,781.70	3,979,141.70
504,000.00	35,000.00	\$26,658	464,500.00	2,359,310	2,603,858.00	4,963,168.00
978,000.00	1,236,000.00	2,000	827,000.00	2,850,215	3,552,000.00	6,402,215.00
710,000.00	1,048,000.00	.....	770,000.00	928,020	3,062,000.00	3,990,020.00
31,000.00	249,000.00	.....	20,000.00	341,310	2,609,000.00	2,950,310.00
.....	.....	.....	.....	318,185	756,000.00	1,074,185.00
.....	.....	.....	.....	366,985	591,000.00	957,985.00
.....	.....	.....	.....	309,580	296,000.00	605,580.00
.....	.....	.....	.....	1,264,525	1,133,000.00	2,397,525.00
.....	.....	.....	.....	1,384,030	1,204,000.00	2,588,030.00
.....	.....	.....	.....	1,804,040	1,136,000.00	2,940,040.00
.....	.....	.....	.....	189,000	228,000.00	417,000.00
.....
.....	.....	.....	.....	618,900	350,000.00	968,900.00
.....	.....	.....	.....	2,268,180	2,309,041.00	4,577,221.00
.....	.....	.....	.....	2,177,320	1,618,000.00	3,795,320.00
.....	.....	.....	.....	1,360,140	1,352,000.00	2,712,140.00
.....	.....	.....	.....	808,040	677,000.00	1,485,040.00
2,654,313.50	2,579,198.00	28,658	2,090,110.80	23,829,425	25,445,009.30	49,274,434.30

* Coinage suspended from May 23, 1893. .

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

[Coinage of the mint at Dahlonega, Ga., from its organization, 1838, to its suspension, 1861.]

Calendar years.	GOLD.				TOTAL VALUE.
	Half eagles.	Three dollars.	Quarter eagles.	Dollars.	
1838.....	\$102,915	.....	.....	.....	\$102,915.00
1839.....	94,695	.....	\$34,185.00	.....	128,880.00
1840.....	114,480	.....	8,830.00	.....	123,310.00
1841.....	152,475	.....	10,410.00	.....	162,885.00
1842.....	298,040	.....	11,607.50	.....	309,647.50
1843.....	492,260	.....	90,522.50	.....	582,782.50
1844.....	444,910	.....	43,330.00	.....	488,240.00
1845.....	453,145	.....	48,650.00	.....	501,795.00
1846.....	401,470	.....	48,257.50	.....	449,727.50
1847.....	322,025	.....	39,460.00	.....	361,485.00
1848.....	237,325	.....	34,427.50	.....	271,752.50
1849.....	195,180	.....	27,362.50	\$21,588	244,130.50
1850.....	219,750	.....	30,370.00	8,382	258,502.00
1851.....	312,550	.....	28,160.00	9,882	351,592.00
1852.....	457,260	.....	10,195.00	6,360	473,815.00
1853.....	448,390	.....	7,945.00	6,583	462,918.00
1854.....	282,065	\$3,360	4,400.00	2,935	292,760.00
1855.....	112,160	.....	2,807.50	1,811	116,778.50
1856.....	98,930	.....	2,185.00	1,460	102,575.00
1857.....	85,230	.....	5,910.00	3,533	94,673.00
1858.....	76,810	.....	.....	3,477	80,287.00
1859.....	51,830	.....	5,610.00	4,952	62,392.00
1860.....	73,175	.....	.....	1,566	74,741.00
1861.....	7,985	.....	.....	.....	7,985.00
Total	5,536,055	3,360	494,625.00	72,529	6,106,569.00

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES .

RECAPITULATION.

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
1793-95.....		\$27,950	\$43,535			
1796.....		60,800	16,995		\$165.00	
1797.....		91,770	32,030		4,390.00	
1798.....		79,740	124,335		1,535.00	
1799.....		174,830	37,255		1,200.00	
1800.....		259,650	58,110			
1801.....		292,540	130,030			
1802.....		150,900	265,880		6,530.00	
1803.....		89,790	167,530		1,057.50	
1804.....		97,950	152,375		8,317.50	
1805.....			165,915		4,452.50	
1806.....			320,465		4,040.00	
1807.....			420,465		17,030.00	
1808.....			277,890		6,775.00	
1809.....			169,375			
1810.....			501,435			
1811.....			497,905			
1812.....			290,435			
1813.....			477,140			
1814.....			77,270			
1815.....			3,175			
1816.....						
1817.....						
1818.....			242,940			
1819.....			258,615			
1820.....			1,319,030			
1821.....			173,205		16,120.00	
1822.....			88,980			
1823.....			72,425			
1824.....			86,700		6,500.00	
1825.....			145,300		11,085.00	
1826.....			90,345		1,900.00	
1827.....			124,565		7,000.00	
1828.....			140,145			
1829.....			287,210		8,507.50	
1830.....			631,755		11,350.00	
1831.....			702,970		11,300.00	
1832.....			787,435		11,000.00	
1833.....			968,150		10,400.00	
1834.....			3,660,845		293,425.00	
1835.....			1,857,670		328,505.00	
1836.....			2,765,735		1,369,965.00	
1837.....			1,035,605		112,700.00	
1838.....		72,000	1,600,420		137,345.00	
1839.....		382,480	802,745		191,622.50	
1840.....		473,380	1,048,530		153,572.50	
1841.....		656,310	380,945		54,602.50	
1842.....		1,039,070	655,330		85,007.50	
1843.....		2,506,240	4,275,425		1,327,132.50	
1844.....		1,250,610	4,037,715		89,345.00	
1845.....		736,530	2,743,640		276,277.50	
1846.....		1,018,750	2,736,155		279,272.50	
1847.....		14,337,580	5,382,685		482,060.00	
1848.....		1,813,340	1,863,560		98,612.50	
1849.....		6,775,180	1,184,645		111,147.50	\$936,789
1850.....	\$26,225,220	3,489,510	860,160		895,547.50	511,301
1851.....	48,013,100	4,393,280	2,651,955		3,867,337.50	3,658,820
1852.....	44,860,520	2,811,060	3,689,635		3,283,827.50	2,201,145
1853.....	26,646,520	2,522,530	2,305,095		3,519,615.00	4,384,149
1854.....	18,052,340	2,305,760	1,513,235	\$491,214	1,896,397.50	1,657,016
1855.....	25,046,820	1,487,010	1,257,090	171,465	600,700.00	824,883
1856.....	30,437,560	1,429,900	1,806,665	181,530	1,213,117.50	1,788,996
1857.....	28,797,500	481,060	1,232,970	104,673	796,235.00	801,602
1858.....	21,873,480	343,210	439,770	6,399	144,082.50	131,472
1859.....	13,782,840	253,930	361,235	46,914	142,220.00	193,431
1860.....	22,584,400	278,830	352,365	42,465	164,360.00	51,234
1861.....	74,989,060	1,287,330	3,332,130	18,216	3,241,295.00	527,499
1862.....	18,926,120	234,950	69,825	17,355	300,882.50	1,326,865
1863.....	22,187,200	112,480	97,360	15,117	27,075.00	6,250
1864.....	19,958,900	60,800	40,540	8,040	7,185.00	5,950
1865.....	27,874,000	207,050	144,535	3,495	62,302.50	3,725
1866.....	30,820,500	237,800	253,200	12,090	105,175.00	7,180
1867.....	23,436,300	121,400	179,600	7,950	78,125.00	5,250
1868.....	18,722,000	241,550	288,625	14,625	94,062.50	10,525
1869.....	17,238,100	82,850	163,925	7,575	84,612.50	5,925
Carried forward.....	560,502,480	54,819,680	67,470,880	1,149,123	26,065,402.50	19,040,007

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

RECAPITULATION.

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
.....	\$204,791	\$161,572.00	.....	.....	.....	\$4,320.80	.....
.....	72,920	.....	\$1,473.50	.....	\$2,213.50	511.50	.....
.....	7,776	1,959.00	63.00	.....	2,526.10	2,226.35	.....
.....	327,536	.....	.....	.....	2,755.00	.....	.....
.....	423,515	.....	.....	.....	.....	.....	.....
.....	220,920	.....	.....	.....	2,176.00	1,200.00	.....
.....	54,454	15,144.50	.....	.....	3,464.00	1,695.50	.....
.....	41,650	14,945.00	.....	.....	1,097.50	650.50	.....
.....	66,064	15,857.50	.....	.....	3,304.00	1,892.50	.....
.....	19,570	78,259.50	1,684.50	.....	826.50	.....	.....
.....	321	105,861.00	30,348.50	.....	12,078.00	780.00	.....
.....	.....	419,788.00	51,531.00	.....	.....	.....	.....
.....	.....	525,788.00	55,160.75	.....	16,500.00	.....	.....
.....	.....	684,300.00	.....	.....	.....	.....	.....
.....	.....	702,905.00	.....	.....	4,471.00	.....	.....
.....	.....	638,138.00	.....	.....	635.50	.....	.....
.....	.....	601,822.00	.....	.....	6,518.00	.....	.....
.....	.....	814,029.50	.....	.....	.....	.....	.....
.....	.....	620,951.50	.....	.....	.....	.....	.....
.....	.....	519,537.50	.....	.....	42,150.00	.....	.....
.....	.....	.....	17,308.00	.....	.....	.....	.....
.....	.....	23,575.00	5,000.75	.....	.....	.....	.....
.....	.....	607,783.50	.....	.....	.....	.....	.....
.....	.....	980,161.00	90,293.50	.....	.....	.....	.....
.....	1,104,000.00	36,000.00	.....	.....	.....	.....	.....
.....	375,561.00	31,861.00	.....	.....	94,258.70	.....	.....
.....	652,898.50	54,212.75	.....	.....	118,651.20	.....	.....
.....	779,786.50	16,020.00	.....	.....	10,000.00	.....	.....
.....	847,100.00	4,450.00	.....	.....	44,000.00	.....	.....
.....	1,752,477.00	.....	.....	.....	.....	.....	.....
.....	1,471,583.00	42,000.00	.....	.....	51,000.00	.....	.....
.....	2,002,090.00	.....	.....	.....	.....	.....	.....
.....	2,746,700.00	1,000.00	.....	.....	121,500.00	.....	.....
.....	1,537,600.00	25,500.00	.....	.....	12,500.00	.....	.....
.....	1,856,078.00	.....	.....	.....	77,000.00	61,500.00	.....
.....	2,382,400.00	.....	.....	.....	51,000.00	62,000.00	.....
.....	2,936,830.00	99,500.00	.....	.....	77,135.00	62,135.00	.....
.....	2,398,500.00	80,000.00	.....	.....	52,250.00	48,250.00	.....
.....	2,603,000.00	39,000.00	.....	.....	48,500.00	68,500.00	.....
.....	3,206,002.00	71,500.00	.....	.....	63,500.00	74,000.00	.....
.....	2,676,003.00	488,000.00	.....	.....	141,000.00	138,000.00	.....
.....	1,000	3,273,100.00	118,000.00	.....	119,000.00	95,000.00	.....
.....	.....	1,814,910.00	63,100.00	.....	104,200.00	113,800.00	.....
.....	.....	1,773,000.00	208,000.00	.....	239,493.40	112,750.00	.....
.....	300	1,748,768.00	122,786.50	.....	229,638.70	108,285.00	.....
.....	61,005	1,145,054.00	153,331.75	.....	253,358.00	113,954.25	.....
.....	173,000	355,500.00	143,000.00	.....	363,000.00	98,250.00	.....
.....	184,618	1,484,882.00	214,250.00	.....	390,750.00	58,250.00	.....
.....	165,100	3,056,000.00	403,400.00	.....	152,000.00	58,250.00	.....
.....	20,000	1,885,500.00	290,300.00	.....	7,250.00	32,500.00	.....
.....	24,500	1,541,500.00	230,500.00	.....	198,500.00	78,200.00	.....
.....	169,600	2,257,000.00	127,500.00	.....	3,130.00	1,350.00	.....
.....	140,750	1,870,000.00	275,500.00	.....	24,500.00	63,700.00	.....
.....	15,000	1,880,000.00	36,500.00	.....	45,150.00	63,400.00	.....
.....	62,600	1,781,000.00	85,000.00	.....	113,900.00	72,450.00	.....
.....	47,500	1,341,500.00	150,700.00	.....	244,150.00	82,250.00	.....
.....	1,300	301,375.00	62,000.00	.....	142,650.00	82,050.00	\$185,022.00
.....	1,100	110,565.00	68,265.00	.....	196,550.00	63,025.00	559,905.00
.....	46,110	2,430,354.00	4,146,555.00	.....	1,327,301.00	785,251.00	342,000.00
.....	33,140	4,111,000.00	3,466,000.00	.....	624,000.00	365,000.00	20,130.00
.....	26,000	2,288,725.00	857,350.00	.....	207,500.00	117,500.00	4,170.00
.....	63,500	1,903,500.00	2,129,500.00	.....	703,000.00	299,000.00	43,740.00
.....	94,000	1,482,000.00	2,726,500.00	.....	712,000.00	433,000.00	31,260.00
.....	.....	5,998,000.00	2,002,250.00	.....	189,000.00	258,000.00	48,120.00
.....	636,500	2,074,000.00	421,000.00	.....	97,000.00	45,000.00	10,950.00
.....	733,930	1,032,850.00	312,350.00	.....	78,700.00	92,950.00	8,610.00
.....	78,500	2,078,950.00	1,237,650.00	.....	209,650.00	164,050.00	14,940.00
.....	12,090	802,175.00	249,887.50	.....	102,830.00	74,627.50	10,906.50
.....	27,660	709,830.00	48,015.00	.....	17,196.00	5,923.00	643.80
.....	31,170	518,785.00	28,517.50	.....	26,907.00	4,523.50	14.10
.....	47,000	593,450.00	25,075.00	.....	18,550.00	6,675.00	255.00
.....	49,625	899,812.50	11,381.25	.....	14,372.50	6,536.25	681.75
.....	60,325	810,162.50	17,156.25	.....	14,662.50	6,431.25	138.75
.....	182,700	769,100.00	31,500.00	.....	72,625.00	18,295.00	123.00
.....	424,300	725,950.00	23,150.00	.....	70,660.00	21,930.00	153.00
.....	5,053,440	95,509,284.50	21,727,878.00	.....	8,376,184.10	4,529,818.90	1,281,762.90

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

RECAPITULATION—Continued.

Calendar years.	GOLD COINAGE.					
	Double eagles.	Eagles.	Half eagles.	Three dollars.	Quarter eagles.	Dollars.
Brought forward	\$560,502,480	\$54,819,680	\$67,470,880	\$1,149,123	\$26,065,402.50	\$19,040,007
1870.....	22,819,480	164,430	143,550	10,605	51,387.50	9,335
1871.....	20,456,740	254,650	245,000	3,990	68,375.00	3,930
1872.....	21,230,600	244,500	275,350	6,090	52,575.00	3,530
1873.....	55,456,700	173,680	754,605	75	512,562.50	125,125
1874.....	33,917,700	799,270	203,530	125,460	9,850.00	198,820
1875.....	32,737,820	78,350	105,240	60	30,050.00	420
1876.....	46,386,920	104,280	61,820	135	23,052.50	3,245
1877.....	43,504,700	211,490	182,660	4,464	92,630.00	3,920
1878.....	45,916,500	1,031,440	1,427,470	216,972	1,160,650.00	3,020
1879.....	28,889,260	6,120,320	3,727,155	9,090	331,225.00	3,030
1880.....	17,749,120	21,715,160	22,831,765	3,108	7,490.00	1,636
1881.....	14,585,200	48,796,250	33,458,430	1,650	1,700.00	7,660
1882.....	23,295,400	24,740,640	17,831,885	4,620	10,100.00	5,040
1883.....	24,980,040	2,595,400	1,647,990	2,820	4,900.00	10,840
1884.....	19,944,200	2,110,800	1,922,250	3,318	4,982.50	6,206
1885.....	13,875,560	4,815,270	9,065,030	2,730	2,217.50	12,205
1886.....	22,120	10,621,600	18,282,160	3,426	10,220.00	6,016
1887.....	5,662,420	8,706,800	9,560,435	18,480	15,705.00	8,543
1888.....	21,717,320	8,030,310	1,560,980	15,873	40,245.00	16,080
1889.....	16,995,120	4,298,850	37,825	7,287	44,120.00	30,729
1890.....	19,399,080	755,430	290,640	.....	22,032.50	.....
1891.....	25,891,340	1,956,000	1,347,065	.....	27,600.00	.....
1892.....	19,238,760	9,817,400	5,724,700	.....	6,362.50	.....
1893.....	27,178,320	20,132,450	9,610,985	.....	75,265.00	.....
1894.....	48,350,800	26,032,780	5,152,275	.....	10,305.00	.....
1895.....	45,163,120	7,148,260	7,289,680	.....	15,297.50	.....
1896.....	43,931,760	2,000,980	1,072,315	.....	48,005.00	.....
1897.....	57,070,220	12,774,090	6,109,415	.....	74,760.00	.....
1898.....	54,912,900	12,857,970	10,154,475	.....	60,412.50	.....
1899.....	73,593,680	21,403,520	16,278,645	.....	68,375.00	.....
1900.....	86,681,680	3,749,600	8,673,650	.....	168,012.50	.....
1901.....	34,150,520	46,036,160	21,320,200	.....	228,307.50	.....
1902.....	35,697,580	5,520,130	5,557,810	.....	334,332.50	^c 75,080
1903.....	24,828,560	7,766,970	10,410,120	.....	503,142.50	^c 175,178
Total	1,666,733,720	378,384,910	299,787,985	1,619,376	30,181,650.00	19,749,595

^a Includes \$475,000 in Columbian coins.^b Includes \$2,026,052.50 in Columbian coins.^c Louisiana Purchase Exposition.

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

RECAPITULATION—Continued.

SILVER COINAGE.							
Trade dollars.	Dollars.	Half dollars.	Quarter dollars.	Twenty cents.	Dimes.	Half dimes.	Three cents.
.....	\$5,053,440	\$95,509,284.50	\$21,727,878.00	.....	\$8,376,184.10	\$4,529,818.90	\$1,281,762.90
.....	415,462	829,758.50	23,935.00	.....	52,150.00	26,830.00	120.00
.....	1,117,136	1,741,655.00	53,255.50	.....	109,371.00	82,493.00	127.80
.....	1,118,600	866,775.00	68,762.50	.....	261,045.00	189,247.50	58.50
\$1,225,000	296,600	1,593,780.00	414,190.50	.....	443,329.10	51,830.00	18.00
4,910,000	.....	1,406,650.00	215,975.00	.....	319,151.70	.....	.....
6,279,600	.....	5,117,750.00	1,278,375.00	\$265,598	2,406,570.00	.....	.....
6,192,150	.....	7,451,575.00	7,839,287.50	5,180	3,015,115.00	.....	.....
13,092,710	.....	7,540,255.00	6,024,927.50	102	1,735,051.00	.....	.....
4,259,900	22,495,550	726,200.00	849,200.00	120	187,880.00	.....	.....
1,541	27,560,100	2,950.00	3,675.00	.....	1,510.00	.....	.....
1,987	27,397,355	4,877.50	3,738.75	.....	3,735.50	.....	.....
960	27,927,975	5,487.50	3,243.75	.....	2,497.50	.....	.....
1,097	27,574,100	2,750.00	4,075.00	.....	391,110.00	.....	.....
979	28,470,039	4,519.50	3,859.75	.....	767,571.20	.....	.....
.....	28,136,875	2,637.50	2,218.75	.....	393,134.90	.....	.....
.....	28,697,767	3,065.00	3,632.50	.....	257,711.70	.....	.....
.....	31,423,886	2,943.00	1,471.50	.....	658,409.40	.....	.....
.....	33,611,710	2,855.00	2,677.50	.....	1,573,838.90	.....	.....
.....	31,990,833	6,416.50	306,708.25	.....	721,648.70	.....	.....
.....	34,651,811	6,355.50	3,177.75	.....	835,338.90	.....	.....
.....	38,043,004	6,295.00	20,147.50	.....	1,133,461.70	.....	.....
.....	23,562,735	100,300.00	1,551,150.00	.....	2,304,671.60	.....	.....
.....	6,333,245	^a 1,652,136.50	2,960,331.00	.....	1,695,365.50	.....	.....
.....	1,455,792	^b 4,003,948.50	^c 2,583,837.50	.....	759,219.30	.....	.....
.....	3,093,972	3,667,831.00	2,233,448.25	.....	205,099.60	.....	.....
.....	862,880	2,354,652.00	2,255,390.25	.....	225,088.00	.....	.....
.....	19,876,762	1,507,855.00	1,386,700.25	.....	318,581.80	.....	.....
.....	12,651,731	2,023,315.50	2,524,440.00	.....	1,287,810.80	.....	.....
.....	14,426,735	3,094,642.50	3,497,331.75	.....	2,015,324.20	.....	.....
.....	15,182,846	4,474,628.50	3,994,211.50	.....	2,409,833.90	.....	.....
.....	^d 25,010,912	5,033,617.00	3,822,871.25	.....	2,477,918.20	.....	.....
.....	22,566,813	3,119,928.50	2,644,369.25	.....	2,507,350.00	.....	.....
.....	18,160,777	4,454,723.50	4,617,589.00	.....	2,795,077.70	.....	.....
.....	10,343,755	3,149,763.50	3,551,516.00	.....	2,829,405.50	.....	.....
35,965,924	569,541,198	161,472,177.00	76,477,601.50	271,000	45,476,561.40	4,880,219.40	1,282,087.20

^c Includes \$10,005.75 in Columbian coins.^d Includes 50,000 Lafayette souvenir dollars.

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES

RECAPITULATION—Continued.

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
1793-1795			
1796			
1797			
1798			
1799			
1800			
1801			
1802			
1803			
1804			
1805			
1806			
1807			
1808			
1809			
1810			
1811			
1812			
1813			
1814			
1815			
1816			
1817			
1818			
1819			
1820			
1821			
1822			
1823			
1824			
1825			
1826			
1827			
1828			
1829			
1830			
1831			
1832			
1833			
1834			
1835			
1836			
1837			
1838			
1839			
1840			
1841			
1842			
1843			
1844			
1845			
1846			
1847			
1848			
1849			
1850			
1851			
1852			
1853			
1854			
1855			
1856			
1857			
1858			
1859			
1860			
1861			
1862			
1863			
1864			\$396, 950. 00
1865		\$341, 460. 00	272, 800. 00
1866	\$737, 125. 00	144, 030. 00	63, 540. 00
1867	1, 545, 475. 00	117, 450. 00	58, 775. 00
1868	1, 440, 850. 00	97, 560. 00	56, 075. 00
1869	819, 750. 00	48, 120. 00	30, 930. 00
Carried forward	4, 543, 200. 00	748, 620. 00	879, 070. 00

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

RECAPITULATION—Continued

MINOR COINAGE.		TOTAL COINAGE.			TOTAL VALUE.
Cents.	Half cents.	Gold.	Silver.	Minor.	
\$10,660.33	\$712.67	\$71,485.00	\$370,683.80	\$11,373.00	\$453,541.80
9,747.00	577.40	77,960.00	77,118.50	10,324.40	165,402.90
8,975.10	535.24	128,190.00	14,550.45	9,510.34	152,250.79
9,797.00	-----	205,610.00	330,291.00	9,797.00	545,698.00
9,045.85	60.83	213,285.00	423,515.00	9,106.68	645,906.68
28,221.75	1,057.65	317,760.00	224,296.00	29,279.40	571,335.40
13,628.37	-----	422,570.00	74,758.00	13,628.37	510,956.37
34,351.00	71.83	423,310.00	58,343.00	34,422.83	516,075.83
24,713.53	489.50	258,377.50	87,118.00	25,203.03	370,698.53
7,568.38	5,276.56	258,642.50	100,340.50	12,844.94	371,827.94
9,411.16	4,072.32	170,367.50	149,388.50	13,483.48	333,239.48
3,480.00	1,780.00	324,505.00	471,319.00	5,260.00	801,084.00
7,272.21	2,380.00	437,495.00	597,448.75	9,652.21	1,044,595.96
11,090.00	2,000.00	284,665.00	684,300.00	13,090.00	982,055.00
2,228.67	5,772.86	169,375.00	707,376.00	8,001.53	884,752.53
14,585.00	1,075.00	501,435.00	638,773.50	15,660.00	1,155,868.50
2,180.25	315.70	497,905.00	608,340.00	2,495.95	1,108,740.95
10,755.00	-----	290,435.00	814,029.50	10,755.00	1,115,219.50
4,180.00	-----	477,140.00	620,951.50	4,180.00	1,102,271.50
3,578.30	-----	77,270.00	561,687.50	3,578.30	642,535.80
-----	-----	3,175.00	17,308.00	-----	20,483.00
28,209.82	-----	-----	28,575.75	28,209.82	56,785.57
39,484.00	-----	-----	607,783.50	39,484.00	647,267.50
31,670.00	-----	242,940.00	1,070,454.50	31,670.00	1,345,064.50
26,710.00	-----	258,615.00	1,140,000.00	26,710.00	1,425,325.00
44,075.50	-----	1,319,030.00	501,680.70	44,075.50	1,864,786.20
3,890.00	-----	189,325.00	825,762.45	3,890.00	1,018,977.45
20,723.39	-----	88,980.00	805,806.50	20,723.39	915,509.89
-----	-----	72,425.00	895,550.00	-----	967,975.00
12,620.00	-----	93,200.00	1,752,477.00	12,620.00	1,858,297.00
14,611.00	315.00	156,385.00	1,564,583.00	14,926.00	1,735,894.00
15,174.25	1,170.00	92,245.00	2,002,090.00	16,344.25	2,110,679.25
23,577.32	-----	131,565.00	2,869,200.00	23,577.32	3,024,342.32
22,606.24	3,030.00	140,145.00	1,575,600.00	25,636.24	1,741,381.24
14,145.00	2,435.00	295,717.50	1,994,578.00	16,580.00	2,306,875.50
17,115.00	-----	643,105.00	2,495,400.00	17,115.00	3,155,620.00
33,592.60	11.00	714,270.00	3,175,600.00	33,603.60	3,923,473.60
23,620.00	-----	798,435.00	2,579,000.00	23,620.00	3,401,055.00
27,390.00	770.00	978,550.00	2,759,000.00	28,160.00	3,765,710.00
18,551.00	600.00	3,954,270.00	3,415,002.00	19,151.00	7,388,423.00
38,784.00	705.00	2,186,175.00	3,443,003.00	39,489.00	5,668,667.00
21,110.00	1,990.00	4,135,700.00	3,606,100.00	23,100.00	7,764,900.00
55,583.00	-----	1,148,305.00	2,096,010.00	55,583.00	3,299,898.00
63,702.00	-----	1,809,765.00	2,333,243.40	63,702.00	4,206,710.40
31,286.61	-----	1,376,847.50	2,209,778.20	31,286.61	3,617,912.31
24,627.00	-----	1,675,482.50	1,726,703.00	24,627.00	3,426,812.50
15,973.67	-----	1,091,857.50	1,132,750.00	15,973.67	2,240,581.17
23,833.90	-----	1,829,407.50	2,332,750.00	23,833.90	4,185,991.40
24,283.20	-----	8,108,797.50	3,834,750.00	24,283.20	11,967,830.70
23,987.52	-----	5,427,670.00	2,235,550.00	23,987.52	7,687,207.52
38,948.04	-----	3,756,447.50	1,873,200.00	38,948.04	5,668,595.50
41,208.00	-----	4,034,177.50	2,558,580.00	41,208.00	6,633,965.54
61,836.69	-----	20,202,325.00	2,374,450.00	61,836.69	22,638,611.69
64,157.99	-----	3,775,512.50	2,040,050.00	64,157.99	5,879,720.49
41,785.00	199.32	9,007,761.50	2,114,950.00	41,984.32	11,164,695.82
44,268.44	199.06	31,981,738.50	1,866,100.00	44,467.50	33,892,306.00
98,897.07	738.36	62,614,492.50	774,397.00	99,635.43	63,488,524.93
50,630.94	-----	56,846,187.50	999,410.00	50,630.94	57,896,228.44
66,411.31	648.47	39,377,909.00	9,077,571.00	67,059.78	48,522,539.78
42,361.56	276.79	25,915,962.50	8,619,270.00	42,638.35	34,577,870.85
15,748.29	282.50	29,387,968.00	3,501,245.00	16,030.79	32,905,243.79
26,904.63	202.15	36,857,768.50	5,142,240.00	27,106.78	42,027,115.28
177,834.56	175.90	32,214,040.00	5,478,760.00	178,010.46	37,870,810.46
246,000.00	-----	22,938,413.50	8,495,370.00	246,000.00	31,679,783.50
364,000.00	-----	14,780,570.00	3,284,450.00	364,000.00	18,429,020.00
205,660.00	-----	23,473,654.00	2,259,390.00	205,660.00	25,938,704.00
101,000.00	-----	83,395,530.00	3,783,740.00	101,000.00	87,280,270.00
280,750.00	-----	20,875,997.50	1,252,516.50	280,750.00	22,409,264.00
498,400.00	-----	22,445,482.00	809,267.80	498,400.00	23,753,149.80
529,737.14	-----	20,081,415.00	609,917.10	926,687.14	21,618,019.24
354,292.86	-----	28,295,107.50	691,005.00	968,552.86	29,954,665.36
98,265.00	-----	31,435,945.00	982,409.25	1,042,960.00	33,461,314.25
98,210.00	-----	23,828,625.00	908,876.25	1,819,910.00	26,557,411.25
102,665.00	-----	19,371,387.50	1,074,343.00	1,697,150.00	22,142,880.50
64,200.00	-----	17,582,987.50	1,266,143.00	963,000.00	19,812,130.50
4,680,577.44	39,926.11	729,047,572.50	136,478,368.40	10,891,393.55	876,417,334.45

XXIX.—COINAGE OF THE MINTS OF THE UNITED STATES
RECAPITULATION—Continued.

Calendar years.	MINOR COINAGE.		
	Five cents.	Three cents.	Two cents.
Brought forward.....	\$4,543,200.00	\$748,620.00	\$879,070.00
1870.....	240,300.00	40,050.00	17,225.00
1871.....	28,050.00	18,120.00	14,425.00
1872.....	301,800.00	25,860.00	1,300.00
1873.....	227,500.00	35,190.00	.....
1874.....	176,900.00	23,700.00	.....
1875.....	104,850.00	6,840.00	.....
1876.....	126,500.00	4,860.00	.....
1877.....	.....	.....	.....
1878.....	117.50	70.50	.....
1879.....	1,455.00	1,236.00	.....
1880.....	997.75	748.65	.....
1881.....	3,618.75	32,417.25	.....
1882.....	573,830.00	759.00	.....
1883.....	1,148,471.05	318.27	.....
1884.....	563,697.10	169.26	.....
1885.....	73,824.50	143.70	.....
1886.....	166,514.50	128.70	.....
1887.....	763,182.60	238.83	.....
1888.....	536,024.15	1,232.49	.....
1889.....	794,068.05	646.83	.....
1890.....	812,963.60	.....	.....
1891.....	841,717.50	.....	.....
1892.....	584,982.10	.....	.....
1893.....	668,509.75	.....	.....
1894.....	270,656.60	.....	.....
1895.....	498,994.20	.....	.....
1896.....	442,146.00	.....	.....
1897.....	1,021,436.75	.....	.....
1898.....	626,604.35	.....	.....
1899.....	1,301,451.55	.....	.....
1900.....	1,362,799.75	.....	.....
1901.....	1,324,010.65	.....	.....
1902.....	1,574,028.95	.....	.....
1903.....	1,400,336.25	.....	.....
Total.....	23,105,538.95	941,349.48	912,020.00

FROM THEIR ORGANIZATION, BY CALENDAR YEARS—Continued.

RECAPITULATION—Continued.

MINOR COINAGE.		TOTAL COINAGE.			TOTAL VALUE.
Cents.	Half cents.	Gold.	Silver.	Minor.	
\$4,680,577.44	\$39,926.11	\$729,047,572.50	\$136,478,368.40	\$10,891,393.55	\$876,417,334.45
52,750.00	-----	23,198,787.50	1,378,255.50	350,325.00	24,927,368.00
39,295.00	-----	21,032,685.00	3,104,038.30	99,890.00	24,236,613.30
40,420.00	-----	21,812,645.00	2,504,488.50	369,380.00	24,686,513.50
116,765.00	-----	57,022,747.50	4,024,747.60	379,455.00	61,426,950.10
141,875.00	-----	35,254,630.00	6,851,776.70	342,475.00	42,448,881.70
135,280.00	-----	32,951,940.00	15,347,893.00	246,970.00	48,546,803.00
79,440.00	-----	46,579,452.50	24,503,307.50	210,800.00	71,293,560.00
8,525.00	-----	43,999,864.00	28,393,045.50	8,525.00	72,401,434.50
57,998.50	-----	49,786,052.00	28,518,850.00	58,186.50	78,363,088.50
162,312.00	-----	39,080,080.00	27,569,776.00	165,003.00	66,814,859.00
389,649.55	-----	62,308,279.00	27,411,693.75	391,395.95	90,111,368.70
392,115.75	-----	96,850,890.00	27,940,163.75	428,151.75	125,219,205.50
385,811.00	-----	65,887,685.00	27,973,132.00	960,400.00	94,821,217.00
455,981.09	-----	29,241,990.00	29,246,968.45	1,604,770.41	60,093,728.86
232,617.42	-----	23,991,756.50	28,534,866.15	796,483.78	53,323,106.43
117,653.84	-----	27,773,012.50	28,962,176.20	191,622.04	56,926,810.74
176,542.90	-----	28,945,542.00	32,086,709.90	343,186.10	61,375,438.00
452,264.83	-----	23,972,383.00	35,191,081.40	1,215,686.26	60,379,150.66
374,944.14	-----	31,380,808.00	33,025,606.45	912,200.78	65,318,615.23
488,693.61	-----	21,413,931.00	35,496,683.15	1,283,408.49	58,194,022.64
571,828.54	-----	20,467,182.50	39,202,908.20	1,384,792.14	61,054,882.84
470,723.50	-----	29,222,005.00	27,518,856.60	1,312,441.00	58,053,302.60
376,498.32	-----	34,787,222.50	12,641,078.00	961,480.42	48,389,780.92
466,421.95	-----	56,997,020.00	8,802,797.30	1,134,931.70	66,934,749.00
167,521.32	-----	79,546,160.00	9,200,350.85	438,177.92	89,184,688.77
383,436.36	-----	59,616,357.50	5,698,010.25	882,430.56	66,196,798.31
390,572.93	-----	47,053,060.00	23,089,899.05	832,718.93	70,975,677.98
504,663.30	-----	76,028,485.00	18,487,297.30	1,526,100.05	96,041,882.35
498,230.79	-----	77,985,757.50	23,034,033.45	1,124,835.14	102,144,626.09
536,000.31	-----	111,344,220.00	26,061,519.90	1,837,451.86	139,243,191.76
668,337.64	-----	99,272,942.50	36,345,321.45	2,031,137.39	137,649,401.34
796,111.43	-----	101,735,187.50	30,838,460.75	2,120,122.08	134,693,770.33
873,767.22	-----	47,184,932.50	30,028,167.20	2,447,796.17	79,660,895.87
850,944.93	-----	43,683,970.50	19,874,440.00	2,251,281.18	65,809,691.68
16,536,570.61	39,926.11	2,396,457,236.00	895,366,768.50	41,535,405.15	3,333,359,409.65

INDEX.

	Page.
Abyssinia, coinage of, 1901 and 1903	262
Africa:	
German East, coinage of, 1901 and 1902	262
French colonies in, production of gold	198
Gold mines of the Gold Coast	197
Production of gold, 1901, 1902, and 1903	263
Production of gold, details of	196
Alabama, production of:	
Estimate of Director	15
Estimate of D. K. Pope	14
Statistics of, by D. K. Pope	116
Alaska, production of:	
Estimate of Director	15
Estimate of Charles G. Yale	14
Statistics of, by Charles G. Yale	47
Alsek District	146
Amount and cost of silver bullion purchased, used in coinage of silver dollars, wasted, sold in sweeps, and seigniorage since 1890	216
Appalachian Range, production of:	
Estimate of Director	15
Estimate of D. K. Pope	14
Statistics of, by D. K. Pope	109
Approximate distribution of gold and silver of producing States and Territo- ries, estimate by the Director	15
Approximate gold product:	
Disposition of	13
Mines of United States	12
Approximate silver product:	
Disposition of	14
Mines of United States	13
Arabia, coinage of, 1902	262
Argentina:	
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	168
Arizona, production of:	
Estimate of Director	15
Estimate of Charles C. Randolph	14
Statistics of, by Charles C. Randolph	51
Art and manufactures:	
Gold and silver used in the United States	35
Gold and silver used in the world	37
Assets and liabilities, mints and assay offices	222
Australasia:	
Coinage of, 1901, 1902, and 1903	262
Gold production, by colonies	189, 190
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	189
Production of fine silver, by colonies	189
Austria-Hungary:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	175
Average, highest, and lowest price of silver	30
Average, highest, and lowest price of silver in London since 1833	226

B.	
Bars:	Page.
Furnished for use in the arts since 1880	37
Manufactured at mints and assay offices, tables of	212
Belgium, coinage of, 1901	262
Bolivia:	
Coinage of, 1901	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	166
Borneo, production of gold in	188
Brazil:	
Coinage of, 1902	262
Mining in	164
Production of gold, 1901, 1902, and 1903	263
Production of gold, details of	163
British colonies in Africa, production of gold	196-199
British Columbia:	
Production, details of	142, 143
British East Indies:	
Production of, 1901, 1902, and 1903	263
Production, details of	188
Malay States	188
New Guinea	188
British Guiana:	
Coinage of, 1901 and 1903	262
Production of gold, 1901, 1902, and 1903	263
Details of	157
British Honduras, coinage of, 1901 and 1902	262
British India:	
Coinage of, 1901, 1902, and 1903	262
Production of gold, 1901, 1902, and 1903	263
Production of gold, details of	184
British North America, gold and silver production, details of	141
Bullion:	
In mints and assay offices, December 31, 1903	34
Silver, average, highest, and lowest price	30
C.	
California, production of:	
Estimate of Director	15
Estimate of Charles G. Yale	14
Statistics of, by Charles G. Yale	67
Canada:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	141
Cape Colony, gold production of	198
Central America:	
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	148
Ceylon, coinage of, 1902 and 1903	262
Chile:	
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	166
China:	
Production of gold, 1901, 1902, and 1903	263
Production of gold, details of	179
Circulation of money in the United States, December 31, 1903	35
Coin, subsidiary, cost of silver purchased	217
Coinage:	
United States, calendar year	20
United States, 1901, 1902, and 1903	262
United States, since 1873, by weight and value	20
United States, since organization of Mint, 1792	270
By United States for foreign governments	21
World, 1901, 1902, and 1903	43
World, 1901, 1902, and 1903, table of	262
World, since 1873, by weight and value	44

Colombia:	Page.
Exports of gold and silver	156
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	156
Colorado, production of:	
Estimate of Director	15
Estimate of F. M. Downer	14
Statistics of, by F. M. Downer	79
Commercial value of silver	30
Commercial ratio of silver to gold since 1687	227
Costa Rica, production of gold and silver in	148
Course of silver	30
Crete, coinage of, 1901	262
Curaçao, coinage of, 1901	262

D.

Denmark, coinage of, 1903	262
Deposits of gold, at mints and assay offices	17-18
Deposits and purchases of silver	18
Deposits of gold and silver at mints and assay offices since 1880	19
Distribution:	
Approximate, of gold and silver, by producing States and Territories, estimate of Director	15
Of gold and silver product, by agents	14
Of gold and silver, by States and Territories	15
Dutch East Indies:	
Coinage of, 1901 and 1903	262
Production of gold in	188
Dutch Guiana:	
Production of gold, 1901, 1902, and 1903	263
Details of	157

E.

East Indies:	
British: Production of gold, 1901, 1902, and 1903	263
British: Production of Malay States	188
Dutch: Production of gold, 1901, 1902, and 1903	263
Dutch: Production of gold	188
Ecuador:	
Coinage of, 1902	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	163
Egypt:	
Coinage of, 1901 and 1903	262
Mining in	201
Employment of gold and silver in industrial arts in—	
United States	35
World	37
Estimate of Director, of gold and silver product of the United States	15
Exports and imports:	
Gold and silver bullion into and from London	32
Gold and silver bullion and coin	21
Gold and silver bullion and coin, tables of	228
Principal countries of the world	25
Exports:	
Of silver to the East	31

F.

Finland:	
Production, details of	170
Production of, 1901, 1902, and 1903	263
Fluctuation in price of silver	30
Form and distribution of stock of money in United States, December 31, 1903	33
France:	
Coinage of, 1901, 1902, and 1903	262
Industrial consumption	39
Production of silver, 1901, 1902, and 1903	263
Production of silver, details of	175

	Page.
French colonies in Africa, gold production of	198
French Guiana, production of gold:	
1901, 1902, and 1903	263
Details of	158
G.	
Georgia, production of:	
Estimate of Director	15
Estimate of D. K. Pope	14
Statistics of by D. K. Pope	115
German East Africa, coinage of, 1901 and 1902	262
Germany:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	174
Gold and silver:	
Approximate distribution, by States, and estimate of Director	15
Bullion in mints and assay offices December 31, 1903	34
Bullion imported and exported into and from London	32
Coinage of the world, 1901, 1902, and 1903	43
Coinage by nations, 1901, 1902, and 1903, tables of	348
Coinage of world, weight and value since 1873	44
Deposits of	17-19
Product of mines of the United States since 1860	17
Product of the United States, estimate of agents	14
Product of the United States, estimate of the Director	15
Product of world, weight and value since 1860	43
Production of Argentina	168
Production of Australasia	189
Production of Austria-Hungary	175
Production of Bolivia	166
Production of British North America	141
Production of Central America	148
Production of Chile	166
Production of Colombia	156
Production of Ecuador	163
Production of Finland	170
Production of Germany	174
Production of Great Britain	173
Production of Greece	177
Production of Italy	177
Production of Japan	187
Production of Mexico	147
Production of Peru	165
Production of Portugal	176
Production of Russia	169
Production of Spain	176
Production of Sweden	173
Production of Turkey	178
Production in the world	41
Received at mints and assay offices since 1880	19
Used in industrial arts in the United States	35
Used in industrial arts in the world	37
Gold:	
Bars manufactured at mints and assay offices, table of	212
Bullion deposited at mints and assay offices	17
Bullion deposited at mints and assay offices since 1880	19
Bullion, stock of, in United States December 31, 1903	34
Coinage of the mints of the world since 1873	44
Coinage of United States	20
Coinage of United States, table of	220
Coinage of United States since 1873, weight and value	20
Coinage of United States from organization of Mint, 1792	268
Coinage of various countries, 1901, 1902, and 1903, table of	262
Deposits at mints and assay offices	17
Imports and exports	21
Imports and exports, 1903, tables of	228

Gold—Continued.	Page.
Imports and exports of the principal countries	25
The Transvaal	196
Mines of the Gold Coast, Africa	198
Mines of the West Coast, Africa	197
Mining in Korea	180
Movement from United States	24
Product of mines of United States since 1860	17
Product of mines of United States, approximate disposition	15
Product of mines distributed by States and Territories	15
Product of mines reported by mint officers and agents	15
Production of United States, 1901, 1902, and 1903, table of	263
Production of the United States, 1903	9
Production of the United States, 1903, estimate of Director	15
Production of the United States, 1903, by placer and quartz mining	16
Production of the world	41
Production of the world, table of	263
Production of the world since 1860, by weight and value	43
Production of Africa	196
Production of Brazil	163
Production of British East Indies	188
Production of British India	184
Production of Cape Colony	198
Production of China	179
Production of Dutch East Indies	188
Production of French colonies of Africa	198
Production of Korea	180
Production of Madagascar	198
Production of Nova Scotia	142
Production of Rhodesia	197
Production of Transvaal	196
Production of Uruguay	169
Production of Venezuela	162
Production of Western Australia since 1886	190
Production of British Guiana	157
Production of Dutch Guiana	157
Production of French Guiana	158
Used for industrial purposes in United States	35
Used for industrial purposes in United States since 1880	37
Used for industrial purposes in world	37
Gold Coast of Africa, production of gold	197
Great Britain:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	173
Greece:	
Production of silver, 1901, 1902, and 1903	263
Production of silver, details of	177
Guatemala:	
Coinage of, 1901	262
Production of gold and silver in	149, 151
Guiana, British:	
Production of gold, 1901, 1902, and 1903	263
Details of	157, 158
Guiana, Dutch:	
Production of gold, 1901, 1902, and 1903	263
Details of	157
Guiana, French:	
Production of gold, 1901, 1902, and 1903	263
Details of	158
Guiana, Venezuelan, mining in	161

II.

Highest, lowest, and average price of silver in:	
United States	30
London since 1833	226

Honduras, British:	Page.
Coinage of, 1901 and 1902	262
Production of gold in	149, 150
Hongkong coinage, 1901, 1902, and 1903	262
Hungary, industrial consumption of gold	39
I.	
Idaho, production of:	
Estimate of Director	15
Estimate of H. Smith Woolley	14
Statistics of, by H. Smith Woolley	82
Imports of silver into India, value of	32
Imports and exports:	
Gold and silver	21
Gold and silver bullion into and from London	32
Gold and silver, tables of	228
Principal countries of the world	25
India:	
British coinage of, 1901, 1902, and 1903	262
Production of gold, 1901, 1902, and 1903	263
Production of gold, details of	184
Value of silver imports into	32
Indo-China coinage, 1901, 1902, and 1903	262
Industrial arts:	
Gold and silver used in United States	35
Consumption of gold and silver in the world	37
Italy:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	177
J.	
Japan:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	187
K.	
Klondike, production of gold	141
Korea:	
Coinage of, 1901 and 1902	262
Production of gold, 1901, 1902, and 1903	263
Production of gold, details of	180
Mining in	180
L.	
Letter of transmittal	5
Liabilities and assets, mints and assay offices	222
Location of moneys of United States	35
London, imports and exports of bullion of	32
M.	
Madagascar gold production	198
Market for silver	30
Maryland, production of:	
Estimate of Director	15
Estimate of D. K. Pope	14
Statistics of, by D. K. Pope	111
Metallic stock	34
Mexico:	
Coinage of, 1901, 1902, and 1903	262
Mining industry in	148
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	147
Michigan, production of, estimate of Director	15
Minor coinage of United States	20
Monaco, coinage of, 1901	262

	Page.
Money in United States, stock of	33
Moneys of United States, metallic and paper, location of	35
Montana, production of:	
Estimate of Director	15
Estimate of B. H. Tatem	14
Statistics of, by B. H. Tatem	85
Morocco, coinage of, 1901, 1902, and 1903	262
Movement of gold from the United States	24
Mines of United States:	
Approximate gold product of	13
Approximate disposition of product	13
Gold and silver product since 1860	17
N.	
New South Wales, production of	191
New Zealand, production of	193
Netherlands, coinage of, 1901, 1902, and 1903	262
Nevada, production of:	
Estimate of Director	15
Estimate of R. K. Colcord	14
Statistics of, by R. K. Colcord	94
Newfoundland:	
Coinage of, 1903	262
Production of gold and silver	143
New Guinea, production of gold	188
New Mexico, production of:	
Estimate of Director	15
Estimate of F. A. Jones	14
Statistics of, by F. A. Jones	97
Nicaragua, production of gold and silver in	149, 151
North Carolina, production of:	
Estimate of Director	15
Estimate of D. K. Pope	14
Statistics of, by D. K. Pope	112
Norway:	
Coinage of, 1901, 1902, and 1903	262
Production of silver, 1901, 1902, and 1903	263
Production of silver, details of	172
Northwest Territories, production of gold	141
Notes of United States outstanding December 31, 1903	35
Nova Scotia, gold production of	142, 146
O.	
Oklahoma, gold deposits of the Wichita Mountains, by H. Foster Bain	103
Ontario, production of gold	143, 145
Oregon, production of:	
Estimate of Director	15
Estimate of F. A. Wing	14
Statistics of, by F. A. Wing	105
P.	
Paper money in circulation in United States, December 31, 1903	35
Persia, coinage of, 1901, 1902, and 1903	262
Peru:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	165
Philippine Islands, coinage of, 1903	262
Portugal:	
Coinage of, 1901 and 1902	262
Production of gold and silver, 1901, 1902, 1903	263
Production of gold and silver, details of	176
Price of silver	30
Production of gold in—	
Africa	196
Argentina	168

Production of gold in—	Page.
Australasia	189
Austria-Hungary	175
Bolivia	166
Brazil	163
British colonies in Africa	196-198
British East Indies	188
British India	184
British Guiana	157
British North America	141
Cape Colony	198
Central America	148
Chile	166
China	179
Colombia	156
Dutch East Indies	188
Dutch Guiana	157
Ecuador	163
Finland	170
France	175
French colonies in Africa	198
French Guiana	158
Germany	174
Great Britain	173
Greece	177
Italy	177
Japan	187
Korea	180
Madagasear	198
Malay States	188
Mexico	147
New South Wales	191
Northwest Territories	141
Norway	172
Nova Scotia	142
Ontario	143
Peru	165
Portugal	176
Rhodesia	197
Russia	169
Spain	176
Sweden	173
The Guianas	157
The Transvaal	196
Turkey	178
Uruguay	169
Venezuela	162
Western Australia	190
World	41
Product of gold mines of United States since 1860	17
Production of gold and silver in—	
Alabama, estimate of Director	15
Alabama, estimate of D. K. Pope	14
Alabama, statistics of, by D. K. Pope	116
Alaska, estimate of Director	15
Alaska, estimate of Charles G. Yale	14
Alaska, statistics of, by Charles G. Yale	47
Arizona, estimate of Director	15
Arizona, estimate of Charles C. Randolph	14
Arizona, statistics of, by Charles C. Randolph	51
California, estimate of Director	15
California, estimate of Charles G. Yale	14
California, statistics of, by Charles G. Yale	67
Colorado, estimate of Director	15
Colorado, estimate of F. M. Downer	14
Colorado, statistics of, by F. M. Downer	79
Georgia, estimate of Director	15

Product of gold mines of United States since 1860—Continued.	Page.
Production of gold and silver in—	
Georgia, estimate of D. K. Pope	14
Georgia, statistics of, by D. K. Pope	115
Idaho, estimate of Director	15
Idaho, estimate of J. W. Cunningham	14
Idaho, statistics of, by J. W. Cunningham	82
Maryland, estimate of Director	15
Maryland, estimate of D. K. Pope	14
Maryland, statistics of, by D. K. Pope	111
Michigan, estimate of Director	15
Montana, estimate of Director	15
Montana, estimate of B. H. Tatem	14
Montana, statistics of, by B. H. Tatem	85
Nevada, estimate of Director	15
Nevada, estimate of R. K. Colcord	14
Nevada, statistics of, by R. K. Colcord	94
New Mexico, estimate of Director	15
New Mexico, estimate of F. A. Jones	14
New Mexico, statistics of, by F. A. Jones	97
North Carolina, estimate of Director	15
North Carolina, estimate of D. K. Pope	14
North Carolina, statistics of, by D. K. Pope	112
Oregon, estimate of Director	15
Oregon, estimate of F. A. Wing	14
Oregon, statistics of, by F. A. Wing	105
South Carolina, estimate of Director	15
South Carolina, estimate of D. K. Pope	14
South Carolina, statistics of, by D. K. Pope	114
South Dakota, estimate of Director	15
South Dakota, estimate of F. R. Carpenter	14
South Dakota, statistics of, by F. R. Carpenter	119
Tennessee, estimate of Director	15
Tennessee, estimate of D. K. Pope	14
Tennessee, statistics of, by D. K. Pope	117
Texas, estimate of Director	15
United States, 1901, 1902, and 1903	263
United States, details of	9
United States, since 1860	17
United States, by States and Territories	15
United States, by mint officers and agents	14
United States, placer and quartz mining	16
Utah, estimate of Director	15
Utah, estimate of B. H. Tatem	14
Utah, statistics of, by B. H. Tatem	124
Virginia, estimate of Director	15
Virginia, estimate of D. K. Pope	14
Virginia, statistics of, by D. K. Pope	111
Washington, estimate of Director	15
Washington, estimate of F. A. Wing	14
Washington, statistics of, by F. A. Wing	131
Wyoming, estimate of Director	15
Wyoming, estimate of F. R. Carpenter	14
Wyoming, statistics of, by F. R. Carpenter	136
World, 1901, 1902, and 1903	263
World, since the discovery of America, table of	266
World	41
World, since 1860, weight and value	43
Production of silver in the United States—	
1903	13
Since 1860	17
By States and Territories	15
Estimate of Director	15
Reported by mint officers and agents	14
Production—	
Of fine silver in Australasia, by colonies	189
Foreign countries	141
Foreign countries, table of	263

Production—Continued.	Page.
Africa	196
Argentina	168
Australasia	189
Austria-Hungary	175
Bolivia	166
Brazil	163
British North America	141
British India	184
Central America	148
Colombia	156
Chile	166
China	179
East Indies	188
Ecuador	163
Finland	170
France	175
Germany	174
Great Britain	173
Greece	177
Guianas, the	157
Italy	177
Japan	187
Korea	180
Mexico	147
New Zealand	193
Norway	172
Peru	165
Portugal	176
Russia	169
Spain	176
Sweden	173
Turkey	178
Uruguay	169
Venezuela	162
Product of—	
Mines of United States, approximate disposition of	13
Silver mines of United States	13
Q.	
Queensland:	
Production of gold	190
R.	
Ratio of silver to gold each year since 1687	227
Reports of special agents on production of precious metals in the States and Territories	47
Rhodesia:	
Production of gold	197
Russia:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	169, 170
Salvador, production of precious metals in	151, 156
S.	
Siam:	
Coinage of, 1901, 1902, 1903	262
Silver and gold:	
Approximate distribution by States and Territories, estimate of Director ..	15
Bullion in the mints and assay offices December 31, 1903	34
Bullion imported and exported into and from London	33
Coinage of world since 1873	44
Production by States, reported by agents	14
Production of mines of United States since 1860	17
Production of the world	41
Received at mints and assay offices since 1880	19
Production in the world since 1860	43
Production in the world, 1901, 1902, and 1903, tables of	263

Silver:	Page.
Average price of, 1903	30
Bars furnished for use in the arts	35
Bars manufactured at mints and assay offices, table of	212
Bullion deposited at mints and assay offices	19
Bullion, value of fine ounce	30
Coinage of United States	20
Coinage of United States since 1873, weight and value	20
Coinage of various countries, 1901, 1902, and 1903, tables of	262
Course of	30
Deposits of	18
Exports to the East	31
Highest, lowest, and average price of	30
Highest, lowest, and average price of, in London, since 1833	226
Imports into India, value of	31
Imports and exports	21
Imports and exports of the principal countries	25
Imports and exports, table of	228
Market for	30
Product of mines of United States	13
Product of mines of United States since 1860	17
Product of mines of United States, disposition of	13-14
Product of mines distributed, by States and Territories	15
Product of mines reported by Mint officers and agents	14
Production of, in United States, 1901, 1902, and 1903	349
Production of, in United States, 1903	13
Production of, in United States, estimate of Director	15
Production of world	41
Production of world since 1860, weight and value	43
Production in foreign countries	263
Production of France	175
Production of Greece	177
Production of Norway	172
Production of Canada	141
Production of British Columbia	141
Production of British North America	141
Used in industrial arts in the United States	35
Used in the industrial arts in the United States since 1880	37
Used in the industrial arts in the world	37
South Appalachian States, production of:	
Estimate of Director	15
Estimate of D. K. Pope	14
Statistics of, by D. K. Pope	109
South Carolina, production of:	
Estimate of Director	15
Estimate of D. K. Pope	14
Statistics of, by D. K. Pope	114
South Dakota, production of:	
Estimate of Director	15
Estimate of F. R. Carpenter	14
Statistics of, by F. R. Carpenter	119
Spain:	
Coinage of, 1902 and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	176
Straits Settlements, coinage of, 1901, 1902, and 1903	262
Stock of money in the United States	33
Sweden:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, details of	173
Production of gold and silver, 1901, 1902, and 1903	263
Switzerland:	
Coinage of, 1901, 1902, and 1903	262

T.

Tables:	
Assets and liabilities, mints and assay offices	222
Bars, manufactured, standard ounces	212

Tables—Continued.

	Page.
Bars, manufactured, value	212
Coinage, United States	220
Coinage, United States, by institutions, since 1792	270
Coinage, United States, fractional and subsidiary, since 1792	269
Coinage, United States, since organization of Mint, by denominations and value	268
Coinage, various countries, 1901, 1902, and 1903	262
Domestic coins for recoinage	214
Deposits and purchases of gold and silver, standard ounces	204
Deposits and purchases of gold and silver, value	206
Deposits of unrefined gold, standard ounces	208
Deposits of unrefined gold, value	208
Deposits of unrefined gold and silver, from organization of Mint	224
Deposits of unrefined silver, standard ounces	210
Deposits of unrefined silver, value	210
Highest, lowest, and average price of silver in London since 1833	226
Imports and exports of gold and silver	228-237
Imports and exports, principal countries of the world	237-261
Production of gold and silver in the world from 1492	266
Production of gold and silver in the United States since 1792	225
Production of gold and silver in the world, 1901, 1902, and 1903	263
Quantity and cost of metal obtained by transfer and purchase for subsidiary coinage	217
Quantity and cost of silver used in coinage of silver dollars	216
Ratio of silver to gold each year since 1687	227
Recoinage of the United States	214
Silver for subsidiary coinage	217
Unrefined domestic gold and silver deposited by the States and Territories since 1792	224
Tennessee:	
Production of, estimate of Director	15
Production of, estimate of D. K. Pope	14
Production of, statistics of, by D. K. Pope	117
Texas, production of, estimate of Director	15
Transvaal, production of gold	196
Tunis, coinage of, 1901, 1902, and 1903	262
Turkey:	
Coinage of, 1901, 1902, and 1903	262
Production of gold and silver, 1901, 1902, and 1903	263
Production of gold and silver, details of	178
U.	
United States:	
Approximate disposition of product	13
Coinage of, 1901, 1902, and 1903	262
Coinage of, since 1873	20
Coinage of, 1903	20
Coinage, table of	220
Coinage of, since organization of Mint	270
Money, metallic and paper, location of	35
Production, 1901, 1902, and 1903	263
Production, details of	9
Product of, gold and silver, estimate of Director	15
Product of, gold and silver, estimate of agents	14
Stock of money	33
Use of gold and silver in industrial arts	35
Uruguay:	
Production of gold, 1901, 1902, and 1903	263
Details of	169
Utah, production of:	
Estimate of Director	15
Estimate of B. H. Tatem	14
Statistics of, by B. H. Tatem	124

V.

	Page.
Value of net silver imports into India since 1835.....	31
Venezuela:	
Coinage of, 1901, 1902, and 1903.....	262
Production of gold, details of.....	162
Production of gold, 1901, 1902, and 1903.....	263
Virginia, production of:	
Estimate of Director.....	15
Estimate of D. K. Pope.....	14
Statistics of, by D. K. Pope.....	111

W.

Washington, production of:	
Estimate of Director.....	15
Estimate of F. A. Wing.....	14
Statistics of, by F. A. Wing.....	131
Western Australia, gold production of, since 1886.....	190
World's coinage, 1901, 1902, and 1903.....	43
World's coinage, 1901, 1902, and 1903, table of.....	262
World's coinage since 1873, weight and value.....	44
World's industrial consumption of gold and silver.....	40
World's production of gold and silver.....	41
World's production of gold and silver since 1860, weight and value.....	43
World's production of gold and silver, 1901, 1902, and 1903.....	263
Wyoming, production of:	
Estimate of Director.....	15
Estimate of F. R. Carpenter.....	14
Statistics of, by F. R. Carpenter.....	136
West Coast of Africa, mining in.....	197

Y.

Yukon and Klondike (<i>see</i> British North America).....	141
---	-----

O

